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OCTOBER
1923

VETERINARY MEDICINE

1827 SOUTH WABASH AVENUE, CHICAGO

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VOL. XVIII No. 10

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Price:—1-gal. can (128 one-ounce doses).....$7.00 per gallon
5-gal. can (640 one-ounce doses..... 6.00 per gallon

Fort Dodge Serum Co.

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VETERINARY MEDICINE

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Veterinary Medicine

VOL. XVIII OCTOBER, 1923 No. 10

Editorial

THE ONTARIO VETERINARY COLLEGE

The credit for establishing education in veterinary science on the Western Hemisphere belongs to the Upper Canada Board of Agriculture, whose chairman the late Hon. Adam Ferguson and the late Professor George Buckland of the University of Toronto in 1861, on the recommendations of Principal Dick of the Edinburg Veterinary College, interested the late Professor Andrew Smith in the organization work which culminated in the birth of the Ontario Veterinary College at Toronto a year later (1862).

Until 1869 the college thus founded was located in Agricultural Hall at the corner of Yonge and Queen streets, when a special building was erected on Temperance street to meet the growing needs. In 1876 the original structure was enlarged and in 1889 the one so well remembered by hundreds of alumni was built and served its purpose until 1914. The college was taken over by the province of Ontario in 1908 when this land-mark was abandoned for a modern one erected on University avenue. Without relinquishing the affiliation to the university this landmark of 60 years was moved to the grounds of the provincial agricultural college at Guelph in 1922 with the view of improving its facilities and environment for veterinary instruction.

The building shown above is located on "College Heights" amid the atmosphere of the Ontario agricultural college which is one of the oldest and most highly accredited agricultural college on the continent, and of the experimental farm which affords recognized advantages to students taking a veterinary course which is to meet the requirements of the hour.

The New Home of the College

The Ontario Veterinary College has had a glorious history, of which its present location is a fitting continuation, and although here we speak only of buildings and accommodations its outstanding feature has always been the qualification of its teachers. From the earliest day until now its teaching staff has been constituted of men of worth and achievement. There was never anything frivolous about the Ontario Veterinary College. Here earnest-minded students have met earnest-minded instructors for more than six decades, and while some will charge that there was a brief period when the time element lagged behind existing standards, the traditional decorum, the good

intentions, and high standing of the teaching staff has never been questioned, and therein lies its glory. During its long history it has had but three principals—Professor Andrew Smith, F. R. C. V. S. (1862-1908); Professor E. A. A. Grange, V. S., M. Sc. (1908-1918); and Professor C. D. McGilvray, V. S., M. D. V. (1918-1923).

THE CLIQUE

"What is the Clique? 'Tis those who attend
All of the meetings, on whom we depend.
They never are absent unless they are sick—
These are the ones the grouch calls 'The Clique'."

"These are the ones who are never behind with their dues
Who come to the meetings and have their own views.
They'll serve on committees and never say die;
"The Clique" are the ones that always 'get by.'"

"We all should be proud of members like these—
You can call them "The Clique" or whatever you please.
They never attempt any duties to shirk—
These are "The Clique," that do most of the work."

"But there are some people who always find fault,
And most of this kind are not worth their salt.
They like to start trouble, they seldom will stick;
They like to put all the work on 'The Clique'."

—Jour. Indiana Med. Ass'n.

Lives there a man in the veterinary profession who has not heard of the cliques, the terrible cliques, that inspired the writer of the above verse? Everywhere we go we hear of the clique that is "running" the association, but in every case it is always a satisfaction to find that the members of this group not only run everything but also attend all the meetings, contribute to all the programs, act on all the important committees, get themselves elected to the important offices, and even pay their dues regularly without solicitation.

There is a no more certain way of stunting any association than that of taking no part in its work and then spreading discord among the members by kicking about what the working contingent (the clique) has done. Applied to veterinary societies at this moment this attitude is extremely harmful in that the clique may become discouraged and driven to leave matters drift into a state of pandemonium that will be worth kicking about.

THE PULSE AND RESPIRATION RATE OF FOWLS

The freshman student was never very long at college before he was well informed about the number of times the heart beats per minute in each of the more common domestic mammals, and he was also quite as well informed about the movement of the lungs. There are, however, few who were ever given any accurate figures about the pulse and respirations of fowls. Little was ever said in this regard except that the pulse was very rapid, the temperature high and the respirations an unknown quantity.

It has remained for Dr. B. F. Kaupp, of the North Carolina Experiment Station, and associate editor of VETERINARY MEDICINE to conduct a series of experiments which places on record for the first time the actual facts concerning these previously unknown data. Readers are referred to the illustrated article by this author in the January issue on the "Respiration of Fowls," and the one in this issue on "Blood Pressure and Pulse of the Fowl," exposing facts observed in experimental work during the past two years which appear to fix definite figures to the pulse rate, the respirations, and also of the blood pressure of domestic fowls. The respirations were studied in the chicken, the duck, the goose and the turkey; and the blood pressure and pulse in the chicken alone. The figures obtained in these experiments are as timely as they appear authentic, and will be appreciated among the wealth of significant knowledge that is being acquired by practitioners anent anatomical, physiological and pathological facts relative to fowl, and which are essential to our successful handling of the feathered patients we now proffer medical attention.

The author gives the respirations of adult cocks as 20.7 per minute; of adult hens as 36.7. The great difference in the rate between males and females is a constant one. The pulse rate was found to average 350; the blood pressure, 135.5; and the temperature 107.3° Fahr. For details as to the other species and the method by which the figures were obtained and confirmed the reader is referred to the above mentioned articles.

THE CAUSE OF LITHIASIS

The experiments of Rosenow and Meisser of the Mayo Foundation on the cause of calculi indicate that they are bacterial in origin and probably due to focal infections. Streptococci which tend to localize in the urinary tract produce the condition necessary to the formation of calculi according to these authors who have succeeded in producing them experimentally in animals. The streptococci incriminated are found where the stone develops and therefore undoubtedly play the role of producing the nucleus upon which the constituent elements precipitate. These experiments suggest strongly that the formation of calculi is purely a local process and not a general disease, and they also explain the enzootic character of lithiasis as observed in veterinary practice. In short, streptococci produce the detritus around which stones develop.

MILK INSPECTION A HEALTH SAFEGUARD IN MANY CITIES

The development of modern sanitary science and the increasing interest in public health have resulted in many cities passing milk ordinances and practicing milk inspection for the protection of the community. This has become more necessary as the growth of our cities has compelled them to obtain milk from farms at greater and greater distances and has resulted in increasing the number of city milk plants.

Features Classified

There are three distinct and essential features in successful milk inspection, according to the United States department of agriculture. They are: Diary inspection, diary instruction, and laboratory control. Dairy-farm inspection regulates the conditions surrounding the source of supply. Without it the safety of the finished product can not be assured. This inspection also extends to city milk plants and to the workers in them.

Educational Work Needed

Dairy-instruction work is largely educational. It teaches the dairymen to know the proper methods of handling milk in order to assure its being of first quality, and gives training in sanitary practices in and around the barn and milk house. The milk laboratory enables health officers to see that the quality of the milk supply is maintained, and enables them to control the various methods used in production, transportation, processing, and delivery.

Large Cities Still Without Protection

Studies of city milk supplies made by the department of agriculture show that most large cities have had milk ordinances for comparatively long periods. Some cities as large as 50,000, however, have practically no facilities for such work. This is a condition that needs immediate attention, department workers believe, and should be met by sanitarians and city officials as rapidly as possible.

TULAREMIA IN WASHINGTON

During January 1923 among the rabbits offered for sale in a Washington (D. C.) market seven were found to be affected with tularemia, a rather newly discovered infectious disease communicable from animals to man.

A man attendant of the market was also affected, and was found to have been infected from rabbits shipped from Tennessee.

Tularemia is a subacute, febrile disease simulating typhoid fever and subacute septic infections, and is manifested by inflamed cervical and pectoral lymph nodes and a persistent fever. It is caused by a specific organism—the Bacterium tularense, which is found in the affected organs, especially the lymph nodes, spleen and liver.

The disease has a wide distribution in the United States, endemic foci having been found from Ohio west to the Pacific coast, and obviously will sooner or later be recognized wherever rabbits are shipped for consumption.

Laboratory workers who dissect rodents, and butchers, and housewives who eviscerate their carcasses are the likely victims.

IS IT CRUEL TO CONFINE WILD ANIMALS

The confinement of wild animals in zoological gardens is not as cruel as it appears. In fact, a wild animal that is assured a regular rationing, kept comfortable in sanitary surroundings, and protected against its natural enemies is much better off than the one which must rummage in the open for whatever food it can find, and which must expose itself to the tyranny of the weather and continually protect itself against a violent death from the hands of man or other animals. It is a question whether captivity is actually a punishment where freedom has so many hazards; whether life of an animal under domestication is not a much more rosy one than life in the wilds, and whether

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there is any form of cruelty could be conceived equal to the miserable emaciation and deaths of wild animals when their food supply falls short. It is indeed obvious that the greatest cruelty that could be inflicted upon the animals now confined for exhibition would be to turn them loose in obedience to the wishes of their intended benefactors.

MONTREAL !

The diamond jubilee of the American Veterinary Medical Association has gone into history. It was held in the metropolis of Canada—the city of many conventions, and a large, interesting, enjoyable meeting it was indeed. It was the third meeting held within the bornes of the Dominion, and easily the best. Everything went off in a facile, pleasing manner that is almost Parisian—no one hurried and yet nothing planned was left undone. It was more than a visit to Canada. It was a sojourn to the only North American commonwealth where a foreign language is the official and the prevailing tongue, and it will be remembered as the first meeting at which papers were read and addresses made that only a part of the audience could understand.

The Opening Session

Alderman Trepanier delivered a warm and scholarly address of welcome in behalf of the citizens of the city, in which the dominant features of Montreal were suavely and modestly declared. The response delivered by the editor of VETERINARY MEDICINE covered the roll the French and English people have played in the history of veterinary science, and credited Montreal with being the cradle of veterinary science on the Western Hemisphere.

The address of President Welch which completed the main features of the first general session, reviewed the association's achievements, its current problems, and the reponsibility it must assume in the future progress of the profession on this continent.

The Business Sessions

Nothing outstanding occured at the business sessions, other than that the reports of the committees on policy, and revision of the constitution were postponed, it having been thought unwise to take what might prove to be premature action on both reports.

The Literary Program

The subjects listed on the official program with few exceptions were read and discussed, in contradistinction to many meetings where absentees were numerous; and the .ground covered was well chosen to meet the needs of all groups of veterinarians. Notwithstanding the subjects are too numerous to list in a brief chronicle of the events, the address of Sir Arnold Theiler on osteophagia and the bearing the control of this disease has had on the live stock industry of South Africa, can hardly be omitted, in view of the mein and enthusiam with which the method of presentation and its revelations impressed the audience. Then the presence of Professor Charles Porcher, representing the Republic of France and the school Lyons, the parent of all veterinary colleges and his contribution on milk hygiene are notable events for the archives of the association.

The Clinic

The clinic was well conducted and excited the usual interest, and although the accommodations have been excelled at other meetings they proved to be adequate enough to meet with general approval. The operations performed were of the usual sort, the one exception being cesarean section on a cow approaching the period of parturition, performed by Dr. T. H. Ferguson of Lake Geneva, Wisconsin, which we believe is the first public demonstration of this operation on a cow. It is worth noting that on the fifth day following the operation the laparotomy wound was healing without reaction and the cow appeared to be no worse from the ordeal.

Then, diagnosis of pregnancy in cows by Dr. John F. Devine of Goshen, New York is worthy of mention, in that the clinic committee prearranged for a test of his skill in determining duringof gestation in a given subject. A cow, bred on a certain date known only to the owner, was the subject selected for this test. The date was contained in a sealed envelope to be opened only after the diagnosis had been made. Chairman Etienne of clinic committee, reported that the "guess" was within two days of the date written upon the card.

The Banquet

The banquet was a delight and was attended by the largest audience of record for the association. Speeches were made both in French and in English by notable persons among whom were Sir Arnold Theiler, Professor Chas. Porcher, Mgr. A. Piette, Dean F. C. Harrison, Dr.

D. Generaux, Dr. L. de L. Harwood, Sen. G. Boyer, Dr. M. C. Baker, and others. From the States toasts were responded to by Drs. Hoskins, Udall, LaCroix, and Mrs. H. Preston Hoskins. Dean D. S. White officiated as toastmaster. The occasion was sumptuous, majestic; and "dry" enough to satisfy the most anxious exponent of our famous "18th."

The Entertainment

The entertainment was replete with features of a high order and yet not tiring, and throughout speaks well for the good judgment of the local committee and the hospitality of our hosts —the veterinarians of Eastern Canada.

The president's reception was a real one; everyone either danced or in lieu of the accomplishment felt like dancing, and contrary to the usual custom everyone attended; then shooting the Lachine rapids and the moonlight dance on the St. Lawrence are events that will not soon be forgotten.

The special excursion starting in Chicago and initiated by the Illinois state veterinary medical association landed triumphantly in Montreal with an enrollment of 135, among whom were President Welch, and Dean Stange who became his successor.

Commercial Exhibits

The commercial exhibits were less elaborate and less numerous than those of meetings in the States. The exhibitors displayed their moral support and good intentions rather than their products and in all probability established the custom of carrying out educational rather than commercial activities.

CONVENTION NOTES

The clinic was humid, not wet.

Many of the delegates extended their trip to Quebec after the meeting.

Des Moines, Iowa, was selected as the next meeting place.

The new president is C. H. Stange, dean of the veterinary department of the Iowa State College of Agriculture and Mechanical Arts.

The vice-presidents elected are Drs. Hart (California), Kelser (of the army), Kingman (Colorado), Daubigny (Quebec), and Moore (Louisiana).

The western delegates pronounced the excursion from Chicago, via Detroit and Kingston a success.

The hospitality of the local committee was felt before the meeting when Dr. Etienne (pronounced "HN") met the boat at Cornwall, supervised debarkation and transportation to the hotel, and saw to it that everyone secured rooms.

The attendance is said to have been the largest in the history of the association. The registration showed 487 veterinarians and about 250 ladies.

There was no criticism of the entertainment heard from the ladies.

The roof garden of the Mount Royal was found to be a poor place to reduce the high cost of living.

Four daughters of Dr. Dufrense, a Montreal veterinarian, furnished a well-applauded musical program at the banquet.

Dr. H. I. Gibson's voice and his rendition of patriotic songs are as good as ever.

Mgr. A. Piette, comparing the peace on this continent with the unrest in Europe, among many other complimentary remarks said, "The harmony of the North American people is a social miracle."

A motion to discontinue the committee on abortion was defeated by an overwhelming vote.

The Society for the Study of Genital Disease of Domestic Animals helds its second annual meeting on Thursday.

Among the Exhibitors

The Pitman-Moore Company's exhibit was limited to a display of their notable campaign of publicity for the veterinary profession.

The Lederle Antitoxin Laboratories featured their new refrigerator system of shipping anti-hog-cholera serum and virus.

Becton, Dickinson & Company were especially interested in uniform state laws for the standardization of clinical thermometers.

The Antidolar Mfg. Company exhibited their well-known local anesthetic which is being introduced into the veterinary profession.

The H. K. Mulford Company, The Abbott Laboratories, and the Jen-Sal Laboratories carried educational rather than selling programs.

Instruments were exhibited by Sharp & Smith and Haussmann & Dunn both of Chicago.

The Ketchum Mfg. Company displayed an ear tag, new to veterinarians, which promises to solve all ear-tag troubles.

The Midwest serum companies were represented in person if not by exhibits. Drs. Barret and Shore of the Fort Dodge Company and Dr. Reardon of the Royal participated in the proceedings.

Professor W. L. Williams exhibited his books.

THE CANADIAN NATIONAL

Canadian veterinarians have originated a national association to be known as the Canadian Veterinary Medical Association. It was born at Montreal during the 60th annual meeting of the A. V. M. A. Principal C. D. McGilvray of the Ontario Veterinary College was elected president and Dr. J. H. Villeneuve of Montreal, secretary. The first meeting will be held in Toronto in conjunction with the provincial association of Ontario, when the plan of organization will be completed.

The movement has caused some concern among certain members of the A. V. M. A. who have expressed fear that the Canadian members are about to break from their old allegiance. Coming at a time when Canada has succeeded in carrying out enthusiastically one of the most successful meetings in the history of the association, the fear seems ill-founded or at least premature; and besides there is ample wisdom to be found in any movement that will bring veterinarians of a given geographical district together in annual convention. The same motives that have created and maintained the Missouri Valley, the Dixie and the Southeastern association apply in the case of Canada. These do not detract from the A. V. M. A. Neither will the Canadian.

THE DIXIE MEETING

The first annual meeting of the Dixie Veterinary Medical Association announced for October 10-11 at the Hotel Chisca, Memphis, promises to be one of the liveliest veterinary conventions of the year. The program promises that a wide range of subjects of both local and general interest will be covered by well known talent, that entertainment will reign supreme, and that the attendance will be large.

The program contains the names of such well-known veterinarians, Alston, Cary, Eichhorn, Flynn, Gates, Hoskins, Kaupp, Kinsley, Lincoln, Luckey, LaCroix, Merillat, O'Connor, Salsbery, Smith (E. I.) and White (G. R.), among the contributors. Those listed to lead the discussions are: Drs. Andrade, Beavers, Bux, Crawford, Beckham, Curry, Drach, Hock, Hollaway, McFarland, Piatt, Shull, Scheibler, Wilson (H. A., and Watkins,

The spirit of the situation is reflected in the banquet announcement which reads: "Any member or visiting veterinarian offering to purchase a ticket to the banquet will be arrested for attempting to pass counterfit money.

RATE OF PASSAGE OF MATERIAL THROUGH THE DISGESTIVE TRACT

The rate at which alimentary material travels in the digestive tract is the title of an interesting and highly instructive article by Professor Pierre A. Fish of the New York State Veterinary College appearing in the April issue of *The Cornell Veterinarian*. The article is a report of experimental work on horses, cows, dogs, goats and poultry conducted by mixing an anilin dye (Sudan III) with butter and then making post-mortem observation on the killed subject to determine at what point in the digestive tube the colored feed is found at different intervals, as well as upon the time the coloring appeared and finally disappeared in the living.

A summary of these findings relative to the through passage of the material is as follows:—Horse, 15¼ to 195 hours; cow, 16 to 95 hours; goat, 14 to 66 hours; poultry, 2 to 137 hours. In two sheep killed 6½ hours after feeding the dye was found still sojourning in the four stomachs, while in two others killed in 6 hours the material was found to have traveled to the cecum. In a dog killed 18½ hours after administration the coloring was found in the rectum.

Editors' Personal Page

INTRODUCING THE MILITARY EDITOR

Captain George H. Koon, V. C., U. S. Army

George H. Koon entered the army as veterinarian of cavalry in 1911 and was commissioned as second lieutenant in 1916 and a few months later as first lieutenant. He was made a captain in the national army in 1917, and major in 1918 during his service overseas. In 1920 he received his commission as captain in the regular army.

He served overseas as division veterinarian of the 32nd division, and later of the 90th, serving with this unit through the major operations of the war, when he was selected for efficiency to the important post of corp veterinarian of the 3rd army, which was hastily organized on the battle fields for the famous "March to the Rhine"—a military movement that called for officers of high merit in every service.

On return to the United States in August, 1919, he was assigned as camp veterinarian, Camp Dodge, and division veterinarian, 4th Division. In December, 1919, he was ordered to Chicago general intermediate depot, and in January, 1920, reported for duty in office of the Surgeon General, Washington, where he is now on duty.

OUR NEW DRESS

With this issue VETERINARY MEDICINE dons new clothes, by dividing itself into definite sections, in which appears all of the material appertaining to each, and in contradistinction to the "department plan" or the plan of placing material promisciously about, where it must be "dug out" by those interested especially in a particular branch of veterinary work.

The "department plan" was discontinued several months ago for the reason that material could not be apportioned to the place it rightly belonged without leaving the impression that the associated editors were responsible for everything that appeared in their respective departments. The injustice of misplacing responsibility being apparent, the present management found it necessary to mix up material throughout each issue, until a plan of classification that would meet every contingency concerned could be worked out.

The future issues therefore will contain an Editorial Section, including the Editors' Personal and Purely Practical pages; a General Section for original articles on subjects of general interest, a Cattle Section, a Swine Section, a Small Animal Section which will include the carnivora and small ruminants; Section on Live Stock Poisoning which will continue to render the service for which it has become famous; a Miscellaneous Section which for the present will contain the case reports on horses, and on general subjects; a Military Section to be edited by an officer of the veterinary corps of the army, which will contain instruction for reserve officers and military news; Zootechnic Notes which will continue to review animal husbandry literature for points of interest to the veterinarian; and finally a News Section for personals and association reports.

Purely Practical

Cod liver oil is the best treatment for rickets.

Young animals require sunlight, and outdoor air and exercise to thrive normally and to acquire the vigor that resists disease.

Insulin is too expensive for veterinary use, and no satisfactory method of administration has yet been contrived for humans.

Huynen, in the Recueil de Medecin Veterinaire, (May 15, 1923) attributes rickets in dogs not so much to chemical and vitamin deficiency of foods as to the influence of the absence of sunlight and exterior atmosphere.

In the treatment of extensive superficial burns, fatalities may be reduced by introducing as much water as possible into the system through every possible channel—the mouth, the rectum, the veins, the peritoneum, and the subcutem.

CHEAP MINERAL MIXTURE FOR POULTRY

The mineral mixture for poultry recommended by the Ohio experiment station consists of 60 parts of bonemeal, 20 parts of limestone and 20 parts of common salt. This is fed at the rate of four pounds per hundred of the mash and costs only four cents a year per hen. This mixture fed with soybean meal or other vegetable protein nearly doubled the food value for both laying hens and growing chicks, making its value almost equal to meat scraps, as it supplies the mineral deficiency of such grains and seeds as soybean, peanuts, and cottonseed.

Hog wallers perpetuate parasites on a premise.

Poultry of various kinds are subject to the ravages of about forty different varieties of parasitic worms.

Tell the farmer to convert some of those old tumble-down buildings into poultry houses.

The common commercial lime-sulphur used as a spray is very effective in keeping the chicken coop free from mites and lice.

Pituitary solution is of value not only in preventing undesirable symptoms of sublethal doses of cocaine and other local anaesthetics of the cocaine group, but also as an antidote in poisoning by lethal doses. Small doses of the pituitary solution should be given simultaneously with the local anaesthetic and it may be used intravenously to combat toxic symptoms.

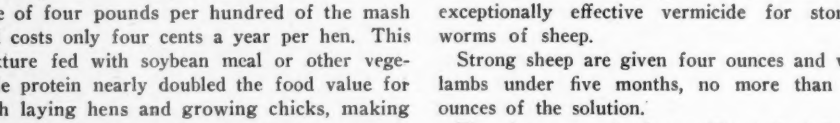
NICOTINE SULPHATE FOR STOMACH WORMS IN SHEEP

One half ounce of a 40% solution of nicotin sulphate dissolved in a quart of water and given at the rate of three ounces to mature sheep and lambs five months old is recommended by the Storrs (Connecticut)experiment station as an exceptionally effective vermicide for stomach worms of sheep.

Strong sheep are given four ounces and weak lambs under five months, no more than two ounces of the solution.

The sheep must be kept without food for 24 hours previous to the administration of the drench.

THE NEW PLACENTA REMOVER



Dr. J. A. Campbell, the distinguished small animal specialist of Toronto has devised an instrument with which the placenta of small animals can be removed with ease and without danger. It operates on the principle of a burr, such as is used for stripping the mucous membrane of the laryngeal ventricle in the roaring operation.

General Section

Blood Pressure and Pulse of the Fowl

By B. F. Kaupp, Raleigh, N. C. Professor of Poultry Science, North Carolina State College

THE blood pressure is the stress upon the enclosed blood of a blood vessel at the point of observation. It depends upon two factors: The peripheral resistance, and the force of the heart; and therefore varies with these forces.

The farther blood proceeds towards the periphery, the less is the pressure influenced by the heart. Thus, the arteries, the capillaries and veins have a pressure peculiar to each. The amount of pressure depends upon the resistance to be overcome, and upon the vis a tergo.

Blood pressure tracings recorded on the kymograph show large undulations, caused by the respiratory movements. The ascent is caused by inspiration, the descent by expiration. (See top line of Figure 1.)

In unconsciousness produced by chloroform, the blood pressure falls about 30 m.m.

Pressure Highest in the Aorta

The highest pressure is registered in the aorta, diminishing gradually toward the periphery. Immediately upon meeting great resistance from the arterioloes into the capillaries, the decrease is very marked.

The causes of increase in blood-pressure in the arteries are: (1) More rapid heart beats; (2) more vigorous and more complete heart beats, driving more blood into the aorta; and (3) contractions of the arterioles retaining the blood in the arterial system. On the other hand, it may be decreased (1) by the heart beating more slowly; (2) by the heart beating less vigorously and completely, thus driving less blood into the aorta at each beat; (3) by the dilatation of the arterioles allowing the blood to flow more freely into the veins; (4) and by deficient supply of blood to the left ventricle; as for example, from contraction of the pulmonary vessels, obstruction to the passage of blood through them, or from stagnation of the blood in the veins as in shock.

Blood pressure is raised in such pathological conditions as granular or contracted kidneys and arterio-sclerosis, or when contraction of the arterioles is produced with digatalis or ergotin. Morphine lowers blood pressure.

PULSE

At each systole the ventricular content is forced into the arterial system; but, because of high peripheral tension, it is unable to pass along as a unit. The aorta becomes distended because of this influx; the elasticity of its wall allows it to regain its normal caliber and thus gives the blood some motion. The main impetus of the blood is given by the succeeding systoles, until it reaches the smaller arteries, whence the elasticity asserts itself more and helps the blood to stream on. Thus the blood is caused to circulate. A wave that runs to the periphery is produced at each systole.

This wave is not an actual movement of the portions of the blood. It is the impulse of the heart along the arterial tree. *This wave is the pulse.* The impulse moves very swiftly without the blood itself participating in the speed. The pulse may be compared to waves produced by throwing a stone into the pond. The pulse wave like the waves in the pond travels many feet per second.

There are three factors concerned in producing the pulse: (1) The action of the heart; (2) the elasticity of the large blood-vessels; and (3) the resistance of the smaller arteries and capillaries.

The pulse is really a shock, perceptible to the touch at each increase of the arterial tension, produced by the successive affluxes of blood forced out by the heart.

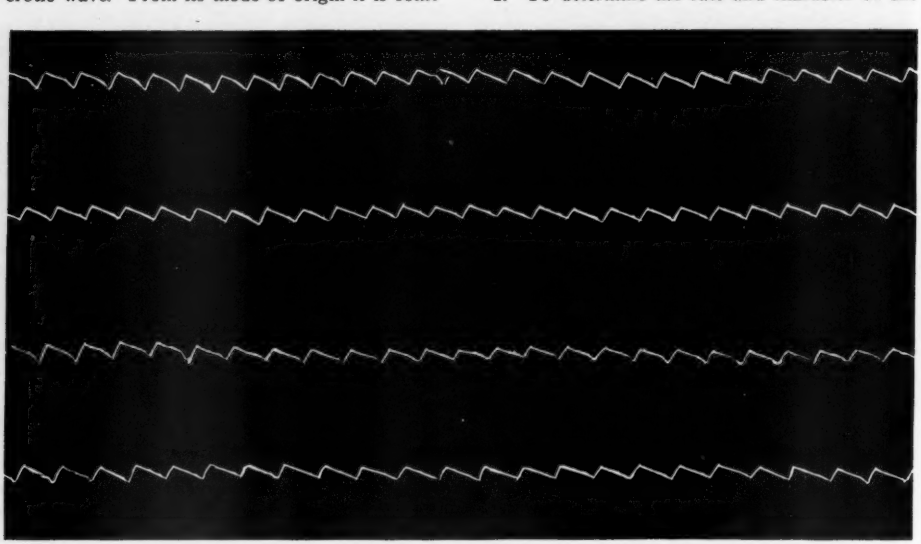
The main feature of the kymographic record is the abrupt ascent and gradual wavy descent, corresponding to the rise and fall in pressure as it responds to the systole and diastole. The wavy character of the down stroke is due to the elastic recoil being more constant and of longer duration than the systole. The sudden influx of the blood into the aorta during systole causes the sharp, long stroke recorded by the kymograph. It will be noted that the down stroke is more gradual, being interrupted by the second and

smaller wave. This fall is caused by the fall of the arterial pressure-diastole.

The Pulse Wave

The line of ascent represents the dilation of the artery by systole when the semilunar valves are forced open and the content is flowing into the artery. The top of the primary wave has received the name "apex."

The more gradual down-stroke is interrupted by two completely distinct elevations of secondary waves, although in the lowest part of the descent there may be several minor inequalities. The more distinct of the two occurs at about the middle of the line of descent. It represents the dicrotic wave. From its mode of origin it is sometimes called the "recoil wave." Between the apex and the dicrotic wave occurs the predicrotic or tidal wave, while below the dicrotic wave occurs the post-dicrotic wave, or waves, since frequently there are several. The line of ascent and the predicrotic wave are caused by systole; the dicrotic, by diastole. The post-dicrotic waves are due to the vascular tension.



A kymographic tracing of the pulse of a nine pound Plymouth Rock. Note the double pulsations. This shows 33 pulsations in 7 minutes or 282 pulse beats per minute.

To recapitulate: The systole drives a mass of blood into a full aorta, producing a positive wave, that is propagated from the heart toward the periphery, where it dissipates among the smallest arterioles and capillaries. At the closure of the semilunar valves, the arteries, from having just been distended, begin to contract upon the contained blood with the result that this newly exerted pressure sets it in motion in two directions: toward the heart and toward the periphery. In the latter direction, the passage is free until the capillaries are reached; towards the heart, the still closed semilunar valves are struck with such force that a recoil results.

OBJECTIVES OF THE STUDY

The knowledge of blood pressure is useful as a guide to the laboratory worker in indicating the pressure that may safely be used in injecting the vascular system for study.

1. To determine the blood pressure of the domestic fowl and factors which modify it.
2. To determine the rate and character of the pulse of domestic birds and some of the factors that modify them.

METHOD OF DETERMINATION

The blood pressure was registered by means of a manometer. The determination was made by direct pressure from the femoral artery. It was found very difficult and impractical to use smaller vessels.

Tests Made With and Without Anesthesia

In the first section of the work, the birds were anesthetized with ether. Birds "go under" and "come out" of ether quickly. They do not pass through an exciting stage and show no ill after-effect.

On account of the possible effects upon the

heart's action, and therefore upon blood pressure, no general anesthetic was used the following year. The only pain is that of cutting through the skin, unless a nerve is encroached upon. Many birds do not flinch when the incision is made with a sharp knife. For this work, therefore, a local anesthetic is preferable.

Technic Employed

The bird is confined to a small poultry operating table, 24 by 30 inches. It is laid on its left side and a cord looped around the base of the wings and the loop of another one around the legs, just above the hocks. The free ends of the cords are passed through holes in the top of the table and fastened tightly to awning hooks located on a cross piece six inches from the floor. The cross piece is nailed to the legs of the table, which is thirty inches high.

After removing the feathers from the outer surface of the thigh, a bold incision two inches long is made just posterior to the femur. As the blood coagulates in thirty seconds, light mopping with a wet cotton sponge is sufficient to keep the wound from filling with blood. By carefully separating the muscles, the femoral artery, vein, and nerve which lie close together, are exposed. Placing the left index finger on the group, the pulsations of the artery can readily be felt. The artery is separated from the vein and nerve, ligated; lifted over the left index finger and incised longitudinally with a sharp pointed bistoury, after washing off with 1% sodium citrate solution.

Applicating the Manometer

The manometer consists of a U-shaped glass tube of 3 m.m. bore. Mercury is poured into the tube until it extends three inches in each arm. The rest of one arm is filled with one per cent sodium citrate as well as the rubber tubing connecting the manometer with an L-shaped glass tubing. The L-shaped tubing was so drawn out that it fits the lumen of the femoral artery and was inserted into the slit out in the artery. The sodium citrate prevents the coagulation of the blood.

Registrating Tambour Records

Both blood pressure and kymographic tracings were determined on each bird. As soon as the blood pressure is ascertained the tubing connecting the artery with the manometer is transferred to the tambour of the kymograph to take the blood tracing. To this tambour is attached a long recording needle which makes the tracing upon the kymograph drum.

Large Cocks Used

For this work in fowls, large-legged cocks of about nine pounds weight, were used. In these birds, the arteries were large enough to work with satisfactorily.

Table 1

Blood Pressure of Domestic Birds Under Anesthetic Direct from the Femoral Artery

Breed	Sex	Pressure in M.M.	Pulse Rate per min.
Buff Orpington	Cockerel	90	
Mongrel	Cock 1 yr. old	112	276
Mongrel	Cock 2 yrs. old	128	
Bronze Turkey	Average	110	
Bronze Turkey	Cock 1 yr. old	166	
	Hen 2 yrs. old	96	330
	Average	113	

In the second year's studies, no general anesthetic was used as it was then known to modify the blood pressure.

Table 2

Blood Pressure of Cocks Not Under Anesthetic Direct from Femoral Artery

Breed	Sex	Pressure in M.M.	Respiration	Pulse Rate	Room Temp.
S.C.R.I. Red	Cock	140	13	340	62
Mongrel	Cock	140			
Black Orpington	Cock	140	14	350	72
Mongrel	Cock	140		350	79
S.C.R.I. Red	Cock	90	18		69
S.C.R.I. Red	Cock	130		300	
Dominique	Cock	140		282	
S.C.R.I. Red	Cock	110		354	
White P. Rock	Cock	180		408	
White P. Rock	Cock	145		408	
White P. Rock	Cock	140		390	
White P. Rock	Cock	120		345	
Mongrel	Cock	150		300	
Average		135.5		348	

SUMMARY

In 1919-1920, when ether anesthetic was used it was believed, in view of the considerable length of time the birds were under anesthesia, that the heart's force and action might become altered. In the 1921-1922 work, the general anesthetic was therefore not used. The first year's work is given in table 1, and the second year's work, in table 2.

Table 1 shows three blood pressure tests made directly from the femoral artery. The average of these tests is 110, but judging from the average of ten, given in table 2 without a general anesthetic, it is much too low for an eight or nine pound cock. In table 2 the blood pressure from the femoral artery averages 135 in thirteen cocks.

Pulse of Fowl Too Fast to Count

The heart beat of the fowl is so fast that the

pulse cannot be counted like that of mammals. After the pulse tracing has been recorded on the kymograph, the speed of the kymograph drum between two given points is determined and the pulse waves recorded are counted.

In the first year, the pulse of but one cock was determined, this was of an eight pound cock and was 276 times per minutes. The pulse of a two year old turkey hen was 330 per minute.

In the second year, where no general anesthetic was used, the average pulse rate of thirteen cocks was 348 per minute. It would therefore appear that the pulse of an average sized fowl is approximately 350 times per minute.

The work may be summarized as follows:

Temperature of the fowl—107.3 degrees Fahr.

Respiration of the fowl, female—36 per minute

Respiration of the fowl, male—20

Pulse rate of the fowl—350 per minute.

Heredity in Relation to Disease

By Elmer Roberts, Division of Animal Breeding, University of Illinois.

IN the short period of time during which the subject of heredity has been studied intensely, facts have been discovered which have altered our ideas concerning many of the characters, both morphological and physiological, of living organisms. Notably among these changed ideas is the one pertaining to the inheritance of acquired characters. By the inheritance of acquired characters is meant the transmission to the young of changes produced either prenatally or postnatally in the parents by environmental factors.

Hereditary Immunity Not Observable

In general, with the exception of a few cases to be noted later, changes in the parents produced by the environment are not transmitted to the offspring. If they were, the use of serums, vaccines, and bacterins would be necessary for only a relatively short period of time, but the immunization of the parents does not seem to produce hereditary immunity in the offspring, unless it is very gradual in which case relatively long periods of time would be required for it to become observable.

An Acquired Character Originates from Germ-Plasm Itself

The reason that acquired characters in general are not hereditary is obvious. An individual is the result of the union of two reproductive cells, the egg of the female and the spermatozoon of the male. Therefore, if an offspring is to show a change corresponding to a change in the parent, as a result of the environment, one or both of the reproductive cells must be changed. A character to be hereditary must have its origin in the reproductive cell or germ-plasm due to the constitution of the germ-plasm itself. It follows, then, that the presence of a character or condition in the offspring at birth does not necessarily mean that it is the result of heredity. A child may show a syphilitic infection at birth as the result of parents having syphilis, in which case a prenatal infection has occurred due to the transference of the organism from the body of the parent to that of the developing child; yet this disease in the child is not due to the structure of the reproductive cells and therefore is not inherited.

A newly hatched chick may have bacillary white diarrhoea due to infection by the organism which was present in the egg and not due to the constitution of the germ-plasm.

Pebrine in the silkworm as Pasteur showed long ago is carried by the egg due to an inclusion of the organism in it, yet this disease is not in a strict meaning of the term hereditary.

Change in Germ-Plasm Permanent

If the germ-plasm can be changed by the environment the change is permanent and will be transmitted to future generations. Only a few such changes up to this time have been produced experimentally.

Guyer and Smith of the University of Wisconsin treated pregnant rabbits with fowl serum sensitized to the crystalline lens of the rabbit. It was found that some of the young from females so treated had eye defects, a condition which proved to be inherited and at the last report had persisted for nine generations, the duration of the experiment at that time. The intensity of the defects did not decrease during successive generations, but in some cases at least increased. Results were obtained from injections administered at the time during pregnancy when the parts of the eye affected were being most rapidly formed. In this experiment it may have been that both the body of the young and their germplasm were affected at the same time by the sensitized fowl serum. However, the important fact is that changes were induced and that they were hereditary.

The experiments of Stockard at the Cornell Medical College with alcohol showed that hereditary conditions could be produced in the offspring of alcoholized parents. The changes could be produced through either the male or female parent. Guyer has also shown that rabbits treated with typhoid bacilli develop a resistance which is transferred to the offspring and persists for at least four generations—how much longer cannot be known until the experiments shall have been concluded.

Disease of Bacteritic Origin Not Hereditary

Disease which is an abnormal condition of an individual may be due to two general causes; the first with which the veterinarian is primarily interested, a result of infection by living organisms; the second, a result of abnormal structure. So far as the evidence exists we have no reason to believe that any disease due to an organism is inherited; but disease due to abnormal structure or functioning may be hereditary. Many cases of the latter are on record. In man it has been clearly shown that color blindness, night blindness, hemophilia, certain types of feeble-mindedness, Huntington's chorea, diabetes in certain cases, fragility of bones, ichthyosis, cataract, and many other abnormalities are inherited.

Offspring Influenced by Either One or Both Parents

Some of these abnormalities show in the offspring when only one of the parents has been responsible for it, in which case such characters are called dominant. Other characters will not show unless received by the offspring through both the egg and spermatozoon, in which case they are called recessive. In the latter case an individual will appear normal if the character has been received from only one parent. A good example of such character of this second class is hereditary cataract in cattle. Detlefsen and Yapp of the Illinois Agricultural Experiment Station found in a herd of dairy cattle that some of the calves were blind. Both the bull and cows possessed normal eyes yet they transmitted to some of their offspring this recessive, hereditary cataract which was visible in the young only when it had come through both the egg and spermatozoon. Knowing the mode of inheritance, it was possible to eliminate this condition in the herd.

Deafness in cats is known to be an inherited character; and recently we have found in dogs, the existence of deafness which appears to be hereditary. No trace of infection could be found in these animals, yet in certain matings one or more deaf puppies would be found in the litters. Out of 102 puppies ten cases of defective hearing were found. The dams and sires of all these puppies were normal.

In the above cases the disease is due to faulty germ-plasm. This does not mean that the same disease may not be caused by other conditions. This leads to a consideration of disease caused by a combination of heredity and environment.

Tuberculosis an Example

For example, tuberculosis is not one of the inherited diseases; yet it is a matter of general knowledge that there are certain hereditary characteristics or weaknesses which cause some individuals to become infected with the bacilli of tuberculosis much more readily than are other individuals. In other words, the disease itself is not inherited but certain attributive conditions are hereditary. Stated in another way, degrees of resistance and susceptibility fall into the category of inherited characters. The degrees of resistance range from complete immunity to complete susceptibility. Certain species of animals are immune to a given disease while other species are susceptible. Our interest, however, lies in

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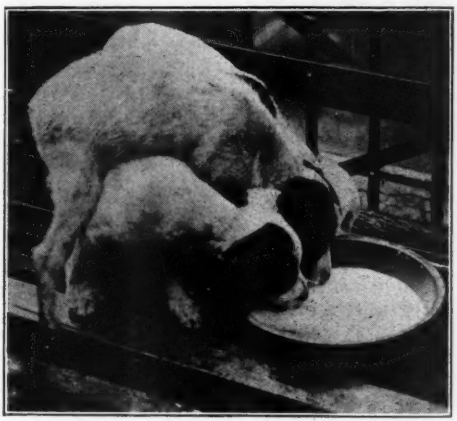
AN EXAMPLE OF ACQUIRED HEREDITY



Although since time out of mind it has been the custom to amputate the tails of fox terriers there are few cases on record of instances wherein dogs of this breed are born bob-tailed, but that natural selection will in the end assert itself is shown by the above illustration of three fox terriers born without tails at Washington, D. C., three months ago. The pups are the property of Mr. Richard Hill, who reports that the parents had long tails, amputated during their puppyhood days.

Cattle Section

Croupous Enteritis of Cattle*

By F. B. Hadley, Madison, Wis.

Experiment Station Veterinarian, University of Wisconsin

THERE is probably no one disorder in cattle that incites so much curiosity and speculation on the part of the uninformed livestockman as does the passage by a bovine animal of a long, rope-like or worm-like substance with the feces. Consequently, even though a veterinarian is not in attendance, the owner will usually call one to treat the case or ask him about it at the first opportunity. Therefore, every practitioner should be well informed about this relatively rare yet extremely interesting affection, so as to avoid the mistake which some have made of calling the pseudomembrane a snake, a worm, a piece of intestine of a smaller animal or of the patient itself, a part of a placenta, or a portion of tendon thought to have been swallowed by accident.

Occurrence

Croupous enteritis in cattle occurs sporadically. It is observed most commonly in dairy cows that have been turned out on pasture unusually early in the spring, but may occur in any bovine at other times of the year.

Etiology

The cause is often difficult or impossible to find in many cases. Infection with different pathogenic bacteria and their toxins is believed by some investigators often to be responsible. Others think that irritating and indigestible foods are more likely the cause. The opinion, held for a long time by certain veterinarians, that cattle are naturally predisposed to croupous enteritis does not appear tenable, for horses and sheep are nearly as subject to it as are cattle.

Macroscopic Lesions

Any part of the small or the large bowel may be the seat of the lesions, but the former is more commonly involved. The diseased parts of the intestines in many cases show upon inspection marked injection of the subserous blood vessels. Inflammation of the mucous membrane makes itself evident by the formation of a tough, elastic, membrane-like exudate on the surface. This exudate at first forms a delicate, net-like layer over the mucous membrane. Later it thickens and assumes the appearance of a pseudo-membrane dirty grey, greyish-white, or brownish-grey in color, that occurs either as patches or in larger confluent masses. In the latter event in most cases it finally assumes the shape of a true intestinal cast which may be hollow or in the form of a solid

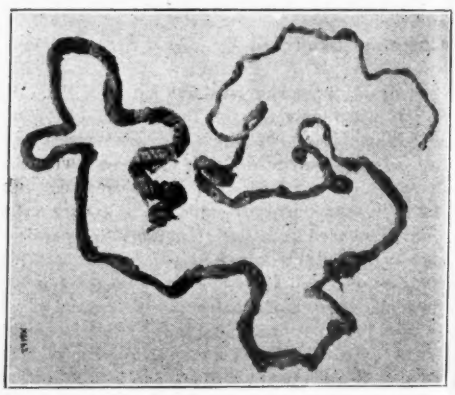


Fig. 1. Portion of croupous membrane passed by a cow. The original specimen was ten feet long; the portion here shown was four feet in length. (Form the author's collection.)

cylinder. As a result of this accumulation the lumen of the intestine becomes somewhat smaller. However, it is very seldom that this narrowing is so pronounced as to cause complete obstruction. By carefully pulling the false membrane, parts of it may be removed from the surface of the underlying mucous membrane. Inspection of the latter reveals thickening, hyperemia, pus and

*Presented before the joint meeting of the Wisconsin Veterinary Medical Association and the Central Wisconsin Society of Graduate Veterinarians, August 7-8, 1923.

often punctiform hemorrhages. The submucosa is frequently found to be edematous. Those sections of the intestine not covered with the exudate may show signs of acute catarrhal inflammation.

Microscopic Lesions

The microscope shows that the croupous membrane consists of polymorphonuclear leucocytes and desquamated epithelial cells. Tests for mucin and mucosin indicate that these vary in quantity,

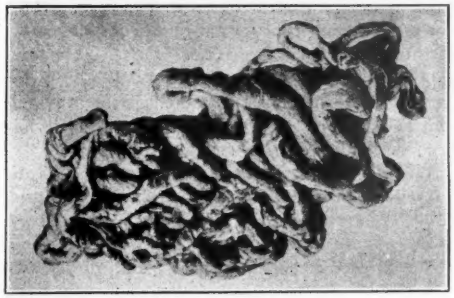


Fig. 2. Croupous membrane from small intestine of an ox passed simultaneously with the feces. The specimen is slightly shriveled from action of the preservative. It is a continuous cylindric cast of the bowel. At the lower left of the picture is seen a cross-section of the cylinder. (From Joest's Spezielle pathologische Anatomie der Haustiere.)

as in some specimens they are present in large amounts, in others only in small amounts. Weigert's stain never shows the presence of fibrin. While the surface epithelium of the bowel was found by Joest to be lacking for the most part and in some cases necrotic—thus indicating a diphthertic inflammation, practically all other investigators have failed to demonstrate that croupous enteritis is anything more serious than a catarrhal inflammation accompanied by an overproduction of mucus. The interglandular tissue often shows evidence of having been infiltrated with fluid and leucocytes. In places, petechial hemorrhages in the mucous and submucous coats of the intestinal wall may also be noticed.

Symptoms

Cattle affected with this form of enteritis exhibit less pronounced symptoms than do those with other forms of bowel inflammation. In fact the animal's health may be so slightly disturbed as not to attract the notice of the attendant, the first indication of disease being the spontaneous passage with the feces of a more or less cylindric mass of croupous membrane resembling a piece of rope or hose, 15 to 30 or more feet long, one-fourth to three-fourths of an inch thick, and of a dirty-brown color. Figures 1 and 2 are photographs of such bowel casts passed spontaneously by cows. Perhaps it is most common for affected cattle to exhibit the following premonitory symptoms of intestinal catarrh: disturbance of the appetite, suppressed rumination, reduction of the milk secretion, intermittent colicky pains and constipation. These symptoms may all temporarily disappear except the constipation and the patient seem normal. However, after several days they recur and the constipation gives away to a profuse diarrhea. The feces are greyish-brown in color, have a pronounced fetid odor, are mixed with fibrin-like shreds or flakes, and in typical cases a long cylinder-like structure, as mentioned above, is passed with them. Improvement is usually rapid following this and recovery is complete in most cases, so it is always safe to make a very favorable prognosis.

The most rational treatment for this disease is the administration of a mucosolvent to aid in the solution and loosening of the croupous formation. For this purpose a large dose of freshly prepared lime water, or of carron oil (lime water and linseed oil, equal parts) is prescribed. The lime changes the mucin and the oil acts as a laxative. After the pseudo-membrane has been passed a demulcent to protect the inflamed surface of the bowels may be administered to advantage. Attention should also be given to the ration, which may comprise such non-irritating, laxative foods as wheat bran, green fodder and roots.

ULCERATIVE STOMATITIS IN CATTLE

There is an epidemic of some form of stomatitis in this locality. The tongue, mouth and lips and in some cases the nostrils are affected with great ulcers which discharge a yellow pus. The subjects become emaciated in a few days, but until now none has died. The temperature is normal. Can this be caused by mold or rust on the grass or forage; or is it contagious?—W. Va.

Reply: An exact diagnosis as to just what form of stomatitis this is can not be made from the above description. We are, however, inclined to believe that close browsing opens up the portals of entrance for the infection. Whether the infection is one of the specific stomatitis or not can only be determined by the physiognomy of the lesions or laboratory examination. The description gives the impression that this is a necrobacillosis.

Expression of the Corpus Luteum in the Treatment of Pyometra*

By Herbert Lothe, Waukesha, Wisconsin

A pure bred holstein cow eight years old had shown no estrum since freshening some eight months prior to date of examination; during this time a more or less persistent vaginal discharge of pus had been present. The history was obscure as to presence of retained afterbirth at time of freshening as cow was not owned by present owner at time of last parturition.

Clinical Examination—Vaginal examination revealed considerable mucus containing large masses of dry curdy pus, a cervical seal was absent and the os uteri open sufficiently to readily allow the passage of a medium sized Albrechtsen uterine catheter. Rectal examination showed a uterus slightly enlarged, especially the right horn, but no distinct fluctuation could be detected. The right ovary contained a deep-seated corpus luteum.

Diagnosis—Pyometra.

Treatment—The corpus luteum was dislodged with some difficulty by compression through the vaginal wall ,(could not dislodge through the rectum without endangering the walls of that organ), and the uterus douched with 2% Lugol's Solution by means of a return-flow, uterine catheter and gravity apparatus. Large quantities of inspissated pus came away in the return flow and in spite of vigorous uterine massage through the rectum it was impossible to bring out all the pus by the use of one gallon of irrigating fluid. The cow showed estrum in four days accompanied by a copious discharge of pus. A second visit eight days later showed the uterus free from pus with just a few flakes of catarrhal mucus in the return flow. The uterus was again douched a week later when the return flow was clear and owner advised to breed cow if next estral period was of normal length (20 to 21 days).

Results—The vaginal discharge stopped within a few days after first treatment. The cow was bred 20 days after first estrum and again 21 days later when conception occurred; she dropped a full time heifer calf 283 days later.

Discussion—This case, while it may not be exactly typical of cases of pyometra in general (absence of great enlargement and fluctuation of uterus) illustrates the value of dislodging the corpus luteum. This simple manipulation was undoubtedly responsible for the evacuation of the pus and should constitute a regular part of the treatment of this condition. The dislodgement causes congestion or engorgement of the uterus and muscular contraction with expulsion of the pus. Without dislodgement of the corpus luteum treatment (uterine irrigation) is often unsuccessful and will be prolonged over such a long period of time as to be economically unprofitable in many cases. The results are so uniformly successful, as far as stopping the vaginal discharge is concerned, that it can be economically practiced on grade cows as one or two visits are all that are required. Whether or not conception will occur after treatment is often impossible to predict; if the oviducts and uterine mucosa are not irrepairably damaged conception should occur but it is often impossible to determine their status. Quite a large percentage of these cases, however, conceive (50 to 60%) and the client is usually satisfied even if conception does not occur for he sees the discharge stop and estrum reappear leading him to feel that treatment was along the right lines.

I might cite another case that illustrates the results that obtain when the corpus luteum is not removed. A pure bred holstein cow showed estrum twice shortly after parturition but was not bred and then failed to show estrum for a period of five months when an examination was made; she had shown no vaginal discharge during this time. Rectal examination revealed a uterus several times its normal size, fluctuating but contained no fetus (no cotyledons felt, neither uterine artery enlarged, etc.) The vagina contained no pus but the cervix allowed the passage of a uterine catheter with the escape of six or eight quarts of thin white pus. The uterus was irrigated and massaged until the return flow was clear. It was impossible to dislodge the corpus luteum present in the right ovary and the repeated washings of the uterine cavity at week to two week intervals failed to prevent the refilling of that organ with pus. The owner did not wish to resort to laparotomy for removal of the corpus luteum and animal was finally slaughtered some six or eight months later without having shown estrum and uterus still contained a considerable quantity of pus. I am satisfied had it been possible to remove the corpus luteum

*Read at the joint meeting of the Wisconsin State and Central Wisconsin Associations, Aug. 7, 1923.

the uterine cavity could have been freed from pus.

These two cases probably originated somewhat differently but were similar in that both were cases of pyometra. The first case was probably the continuation of an infection from the puerperal period although the history is not sufficiently clear on this point, while the second case probably began as a hydrometra (heat was present shortly after parturition) with subsequent infection of the clear uterine content changing it to pus.

METHOD OF DEHORNING AND WHEN TO DEHORN

Will you please write the best method of dehorning cattle of all ages? Is the saw preferable to the dehorning shears? Which is the best dehorner? I have been informed by one or two old veterinarians that the dehorning shears are dangerous in old animals in that they sometimes fracture the skull, although I have never had any complications besides infections.—Kentucky.

Reply: There is no especial preference in the various dehorners, as long as the instrument is strong enough for horns of all sizes and ages. We refer dehorning with shears rather than with a saw.

The danger of fracturing bones is purely imaginary, although to do clean cutting job the shears should be sharp.

The secret of doing good work is to place the shears well down over the root of the horn so as to take off quite a ring of hairs, and to have the head well secured in a position where the long handles can be operated without hindrance from surrounding obstacles. Trying the head against a stall partition with a strong rope halter and high enough so that the handles will not come down to the floor, seems to give us the best satisfaction. A stanchion has never given us the same satisfaction because it interferes with the free use of the instrument at the desired angle.

To stop the bleeding use a cloth hood, oval shaped, about a foot long and five inches wide, with a string a foot or so long tied to each end. When the two horns have been amputated put a good firm and evenly-level pad of oakum over each stump and tie it down tight with the hood, tying the strings together under the jaws. Instructions is given to cut the string in three to four hours, leaving the hood in place. It will now be matted down with dried clotted blood and will generally stay on until the wounds are safely healed. If it comes off too soon the wounds should be dusted with iodoform and boric acid powder.

Cauterization of the horn matrix in the young animal is of course the less painful procedure and is recommended by many in preference to waiting until removal becomes a rather unwelcome ordeal both to the surgeon and the animal. On the other hand the idea that depriving an animal of horns when very young makes them more docile is not born out by experience. We have found that the disciplinary effect of suddenly depriving a horned animal of their organs of offense just at the time they are beginning to harass the less fortunate members of the herd is very striking, while those dehorned young that are vicious by nature may always remain a nuisance.

COMPLICATIONS FROM DEHORNING

I dehorned a very valuable Ayrshire bull about two months ago which later developed a catarrh of both horns I have not succeeded in curing.

I cleaned the horns out thoroughly after amputating, removed all hair and dust, sprayed them with a fly repellent, and left instructions to repeat the spray twice a day. Is there anything I could have done in removing the horn to avoid this complication? The horns had to be removed in very hot weather as he had become dangerous. Please suggest treatment.—Quebec.

Reply: See method of dehorning elsewhere in this issue. The faults here are that the operator infected the wounds by unnecessary meddling and then applied a fly repellent of doubtful antiseptic value as a disinfectant and protective. The bull will recover gradually if the horn stumps are simply treated by dusting with an antiseptic powder. Irrigations are harmful.

ABSTRACTING BLOOD FOR COMPLEMENT FIXATION TEST IN ABORTION DISEASE

Pardon me for asking a simple question. I would like to know how to abstract blood from cows to send to the laboratory for the complement fixation test, and also how much blood should be sent from each animal to assure the best results.

Reply: The subcutaneous abdominal vein (mammary or "milk' vein) is the best site for the abstraction of blood for from cows when only a limited quantity is desired. The operator protects himself against kick by fixing the hind legs, raises the vein if necessary by damming

the flow with the finger and abstracts the blood with any ordinary hypodermic needle of sufficient caliber to furnish a good-sized stream. The needle should be sharp so as to penetrate freely and without much pain. One to three ounces should be be taken from each animal.

FAVORS BACTERINS AND FORMALIN FOR MASTITIS

On page 756 of the August issue I notice a criticism of DeVine's method of treating mastitis by H. W., Wisconsin. If his is the successful method I certainly would be thankful for detailed information, relative to the proportions of the various ingredients of this remarkable ointment.

My method is to use bacterins, elimination, formalin, hot applications, and phytolacca ointment, but unless I am right on the job at the outset of the disease my success is not all that one could hope for. I get a great deal of helpful hints from your really splendid magazine and from time to time like to tell others of my own experiences.

Boynton, Florida. B. T. Hopkins, D.V.M.

DISCOVERY OF BLACK-LEG VACCINATION

When was black-leg vaccination first discovered and by whom? A friend of mine claims it was discovered in Japan while I have insisted the credit belongs to B. A. I. veterinarians. Please state who is right.—Nebraska.

Reply: Neither of you is right. Black-leg vaccination was first practiced in France. The discovery belongs to Arloing, Cornevin and Thomas who introduced a successful method of vaccination against this disease in 1883 at Lyons. Nitta, a Japanese veterinarian only a few years ago, however, developed for practical use the artificial aggressin we now call black-leg filtrate.

Nörgaard of the United States bureau of animal industry is credited quite generally in this country with having perfected the one-injection method in 1896.

We believe the credit should go as follows:—Arloing, Cornevin, and Thomas developed a successful method in 1883, Kitt, a German, developed the one-injection method a few years later; Nörgaard perfected the one-injection method in 1896; and Nitta introduced the filtrate.

Filtrates however were experimented with at Alfort by Vallee and LeClainche as early as 1885. Nitta was a student of Alfort.

POTASSIUM IODID CURES VALUABLE BULL

A yearling bull gradually developed an enlargement within the pharynx that grew to the size of a cocoanut and which appeared clinically to be a tuberculous retropharyngeal lymph node. The affected side bulged out conspicuously and when pressed upon would almost completely obstruct respiration. As the tuberculin test give negative results, the subject was treated for actinomycosis with iodid of potassium. Two drams were given twice a day in alternate ten-day periods for several months. The lump gradually diminished and has now entirely disappeared. The bull is now going the rounds of the fairs in a perfect state of health.

Chenoa, Illinois. F. H. Burt

VITAMINS AND PASTEURIZATION

What is the effect of pasteurization on vitamins? Our health officer under whom I am working as a milk inspector contends that vitamins are destroyed by the process or at least so seriously weakened that raw milk properly inspected as to source and distribution would be preferable to pasteurized milk, while I am contending before our city council that a pasteurizing plant is essential to assure a safe milk supply for our people. Kindly reply in the journal so that I can use your views as an argument. —Mississippi.

Reply: According to the best opinions pasteurization of milk by exposing it to 150° Fahrenheit even for full 30 minutes does not destroy fat-soluble A, nor water soluble B, but does weaken the antiscrubotic C. vitamin.

POST MORTEM LESION OF MALIGNANT EDEMA AND BLACK-LEG

In holding a post mortem examination on a carcass of a cow that shows an emphysema of the flesh, how am I to distinguish between black-leg and malignant edema? The carcass in question was two days old when I was called to make the field diagnosis.—Nebraska.

Reply: There should be no difficulty in differentiating between these two diseases post mortem, since malignant edema is always due to a more or less conspicuous wound, whereas in black-leg no wound can be found. Furthermore malignant edema is a local, pronounced

gangrene of the part effected. Then, the tar-like character of the blood of black-leg is not found in malignant edema, and the former attacks only the younger animals.

LUMPY JAW

I have under my care a Short Horn bull which is very valuable. The left branch of the inferior maxilla is slightly thickened. A few days ago a small abscess broke and discharged. The discharge however ceased and prevented me from taking a specimen for examination. The teeth seem neither sore nor loose although there seems to be some loss of appetite. I suspect actinomycosis and plan to administer potassium iodid but before doing so I desire to know whether iodids are harmful to reproduction.—Pennsylvania.

Reply: The bull you mention doubtless has antinomycosis although it must never be forgotten that bovines like equines have dental troubles presenting the same physiognomy as the initial stage of lumpy jaw. One can generally distinguish actinomycotic pus from the other varieties by the yellow grain-like particles it contains. Then, of course a microscopic examination will decide.

At the age of seven years, and without any evidence of decay of the adjacent teeth I would be very suspicious of such a growth. You should scrape out some tissue with a curette and send it to the University for examination, providing you do not find the telltale yellow grains in the discharge, in which case that alone would be convincing.

As regards the administration of iodid of potash you can safely give such an animal two to four drams twice a day for ten days, suspend for a like period and repeat, without any danger, and so far as we have ever heard there will be no harmful effect on breeding. See case report of Dr. F. H. Burt in this issue.

Tuberculous cattle are the principal source of infection of other cattle and swine.

There is not sufficient data available to substantiate the general statement that one treatment with either the filtrate vaccines will confer life immunity to blackleg.—Geo. H. Hart.

The "Culture Filtrate," a laboratory product, though at first showed great promise, has not been generally satisfactory in preventing blackleg in calves.—Howard Welch.

Colostral production is the result of some internal secretion of the placenta.—Frankl.

The tuberculin test has been invaluable in securing and maintaining herds free from tuberculosis at the New York experiment station at Geneva. The test has not been perfect but it has been so accurate that by its use a tuberculous herd was freed of the disease and a healthy herd maintained for 17 years without one demonstrated case of tuberculosis.—Dahlberg.

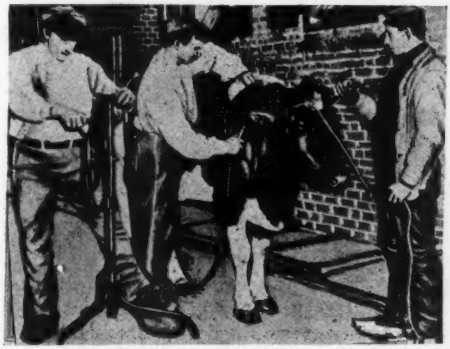
LESIONS OF COTTONSEED POISONING

Goldberg and Maynard have conducted some investigations to determine the lesions produced by continuous feeding of cottonseed meal and have published the following conclusions:

1. That the lesions in cottonseed injury are generalized edema.
2. That the initial lesion apparently is ascites.
3. That the poisonous substance may be transmitted to the offspring through the milk.

The monthly physical examination by veterinarians of cows supplying raw milk for Kansas City, Missouri, in accordance with a recent milk ordinance, is proving of value in the production of milk with a low bacterial count. Cows affected with incurable mammary disturbances are eliminated and the milk from cows that are affected with temporary disturbances is eliminated until the udder is normal. It is very evident that prevention and treatment of mammary disorders is of the greatest importance to the dairy industry.

CLIP THE COWS



Milk hygiene calls for clipping of dairy cows with more regularity than it is practiced in this country. The above photograph was taken in Holland.

Small Animal Section

Treatment of Convulsions in Dogs*

By E. L. Quitman, Assistant Editor

IT is not my intention to enter upon a scientific discussion of this very broad and troublesome subject but to treat in an intensely practical manner as regards the therapeutic handling of the very common conditions spoken of as convulsions or fits.

Colics were the most common and troublesome conditions met with in horses and this causes me to study them and their therapeutics exceedingly close and to arrive at a "standardized treatment" which is now well known and has given universal satisfaction.

For the same reasons mentioned in connection with colics of horses I have given careful study to the subject of canine convulsions and have conducted exhaustive therapeutic experiments extending over a number of years and I believe that I am now able to give to the veterinary profession a "standardized treatment" that will give more pleasing results than any heretofore used.

Convulsions Classified

From a practical standpoint it might be said that convulsions are of two kinds i. e.—those that arise from more or less removable causes and those that arise from causes which are not really removed (such as infections and dietetic deficiencies).

The word "convulsions" is here used to cover every type and degree of fits from that type in which there is only a mild chattering or snapping of the jaws accompanied by perhaps some frothy saliva, to the violent tetaniform, or epileptiform convulsions or the furious type in which the animal barks furiously, runs wildly, will jump through a window and in other ways give evidence of a furious delirium rather than convulsions. In fact it is a misnomer to include the latter condition in some instances in the category of convulsions but insomuch as convulsions so frequently accompany the delirium I shall for practical and therapeutic purposes include delirium.

*Read before the meeting of the Illinois State University Medical Association and University Conference, July 10th to 12th, 1923.

Therapeutics

In the instance of convulsions due to infections such as those that complicate distemper, typhus, cerebro-spinal meningitis, etc., and dietetic deficiency conditions—quick removal of the cause is out of the question—control, being our only hope and such drugs as the bromides, chloral hydrate, gelsemium, passiflora incarnata, lobeline sulphate, etc., have not only failed us miserably in the control of convulsions due to infectious and deficiency conditions but are on account of their depressant action detrimental to the possible recovery of the patient.

Introduces Luminal-Sodium and Other New Agents

Such convulsions as well as epileptic convulsions can best be controlled by luminal or by luminal-sodium of which I will treat more fully later on in this article. On account of convenience I prefer luminal-sodium.

For the other type in which the cause is more or less quickly removable such as those cases due to worms, over-loaded stomach, indigestible material in the stomach or intestines, obstipation, obstruction of the bowels, etc. and those due to fright or excitement may be included in this category as fright or excitement will rarely if ever cause convulsions unless accompanied by an overloaded or at least a full stomach or possibly obstipation.

In this later class the sheet anchor drugs are apomorphin hydrochlorid, arecolin hydrobromid and luminal-sodium, augmented in convulsions due to infections and dietetic deficiencies by barbital (veronal) and horse-nettle berries.

In fact these five drugs properly handled constitute my "standardized treatment" for convulsions. Surely not a formidable list of drugs. However, they constitute a most formidable battery against convulsions.

In some cases apomorphin and luminal-sodium constitute the battery of defense, in some it is arecolin and luminal-sodium while in

others, the infections and dietetic deficiency cases it may be luminal-sodium or the fluid extract of horse-nettle berries or possibly barbitol if necessary.

Suggests Cause and Treatment of Fright Disease

In those cases of convulsions which are preceded by a frightened appearance, loud yelping and barking and a tendency to run there is some material in the stomach or perhaps a piece of cloth, waste or some such material wedged in the pyloric orifice which must be removed to cut short the attack and to prevent a continuance of the convulsions to a fatal issue.

For the removal of such obstructive and perhaps toxic material apomorphin hydrochlorid is used in doses of one tenth to one fifth of a grain dissolved in a little water and administered hypodermatically. For pups under two months old one thirtieth to one twentieth of a grain is usually sufficient. In some rare cases there seems to be paralysis of the stomach, especially if the condition has prevailed for 10 to 12 hours, then the apomorphin may have to be repeated at fifteen minute intervals for two to four doses. Should this repetition of doses fail then the stomach should be washed out as even though the apomorphin may fail to produce emesis (in one case in a thousand) it causes such sedation that gastric lavage can be performed.

The veterinarian usually gets these cases promptly on account of the fear that they inculcate in the minds of the laity that the dog "has gone mad".

In many such cases after the stomach is emptied, the convulsions cease without additional treatment though there are sufficient exceptions to justify the veterinarian in always following up the emetic after its action has caused (which is from one-half to one hour) with the proper doses of luminal-sodium to check any further convulsions and to quiet the patient which should be put in a dark quiet place to rest and sleep.

Arecolin and Luminal-Sodium for "Worm Convulsions"

In convulsions due to worms, obstipation or toxic material in the intestines, all of which may cause convulsions varying from the mildest to the most violent type but minus the delirium of the stomach causes arecolin hydrobromid followed later by a dose of luminal-sodium is the battery of defense chosen.

The foregoing types of convulsions rarely require more than one to three doses of luminal, and frequently the convulsions subside upon relieving the stomach or bowels of their offending material, especialy when apomorphin is used as it has anti spasmodic and sedative actions in addition to its emetic action.

In those cases due to *not readily removable causes* such as infections and dietetic deficiency conditions—the battery of defense is luminal to control the violent convulsions and fluidextract horse nettle berries to subdue the convulsions conmitant with spinal-meningitis. either drug administered 2 or 3 times daily usually controls the convulsions, although they may be given more frequently if necessary.

Barbitol (veronal) is not often required when luminal is used, it may be used in very severe cases should the luminal fail to cause sleep or it may be used in the absence of luminal, although luminal is the prefered drug in the treatment of convulsions on account of its greater curative properties.

Barbitol is more hypnotic than luminal while luminal is more anticonvulsant than barbitol.

Pharmacology of the Forementioned Drugs

Apomorphin hydrochlorid is the salt of an artifical alkaloid of opium, very soluble in water. It is obtainable in 1/20 to 1/10 grain tablets. The dose, hypodermatically for dogs is 1/20 to 1/5 grain. In styrchnin convulsions large doses are required and may have to be repeated.

Principal physiological actions:—In full doses, it is emetic, antispasmodic and sedative. In small doses (1/40 grain) it is a liquifying expectorant and sedative to the respiratory mucos membranes. As an emetic it acts in from 3 to 10 minutes. In cats it acts as a very quick acting emeto-cathartic.

Arecolin Hydrobromid

Arecolin is the active principle of areca nut and although it does not seem to have the vermicidal effect of the powdered nut it is remarkably effective as a quick acting vermifuge and cathartic. Acting especially well for the removal of tape worms. It is very soluble in water. The dose for dogs by the mouth is 1/8 to 1/4 grain for puppies under two months of age; for older dogs 1/4 to 1 grain and even 1½ grains according to age, and size or weight. It acts in from 10 to 60 minutes, usually in less than 30 minutes if a proper dose has been given. It is remarkably safe for the dog.

Luminal and Luminal-Sodium Phynylethyl-malonyhrea and its Sodium Salt

Actions:—Luminal is one of the most powerful of the modern synthetic hypnotics. In large doses up to 7 to 10 grains, it produces deep sleep in severe mental disorders, except in the presence of marked excitement or pain. It must be employed cautiously and in small doses. It also has proved a powerful sedative, especially in epileptic conditions. In properly selected doses it does not depress the heart or respiration, and acts satisfactorily in small doses in various convulsive conditions.

It does not irritate the kidneys when used in the customary range of doses.

It exerts a pronounced and antispasmodic action in epileptic and other convulsive conditions.

In the form of luminal-sodium it may be given rectally and sub-cutaneously as well as orally. For this reason I use the sodium salt in preference to luminal which can only be given orally.

Description:—Luminal is a white, odorless and somewhat bitter powder, almost insoluble in cold water, but dissolving readily in organic solvents and dilute alkalies.

Luminal-sodium is a white, crystalline, hygroscopic powder, very easily soluble in water. Solutions however, decompose and should not be kept over one week. Luminal and its sodium salt is obtainable in the powder and in tablets: luminal in 1½ and 5 grain tablets and luminal-sodium in 1½ grain tablets.

Dosage: Ordinary range of dosage is from 1½ grains to 10 grains. Of the luminal-sodium I usually give from 1½ to 3 grains to an average size dog, grading the dose according to the severity of the convulsion.

In epilepsy or prolonged convulsions I give 1½ grain 2 to 3 times daily. The salt is somewhat slower in action than luminal itself. In dogs effects are obtained in from 30 to 60 minutes when given orally, somewhat quicker when administered subcutaneously. The same doses may be used subcutaneously or rectally as when given orally.

Barbital

This drug was formerly known as veronal when it was patented and made in Germany, but since being made in the United States it is known as barbital. It occurs as a white powder and in 5 grain tablets.

Dosage: Five to fifteen grains, ten grains however seldom has to be exceeded in the dog to produce sleep.

Actions: It is somewhat anodyne, antispasmodic, and markedly hypnotic, causing deep restful sleep. In large doses it is a cardiac and respiratory depressant.

Horse-Nettle Berries

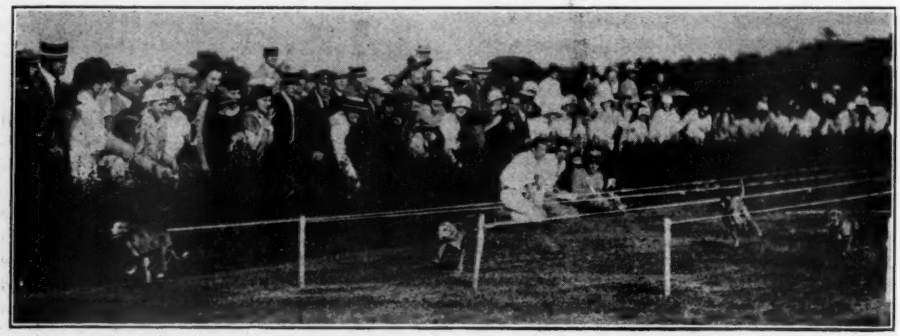
Botanical name, Solanum carolinense—Lin. non-official.

This drug is a spinal sedative and I find it most useful to control and maintain in control the convulsions of spinal meningitis.

Dosage—Dog ½ to 1 dram of the fluidextract 2 to 3 times daily combined with some flavoring agent.

In conclusion I wish to mention that insomuch as this paper has to do only with *convulsions* in dogs I am precluded from taking up

THE WHIPPET DERBY



Except among dog fanciers it is not generally known that dogs like horses have their derbies. The illustration shows "Tommy" winning on the 200 yard straight track at Pridemore, Mass., with some of the fastest whippets in the country among the "also rans".

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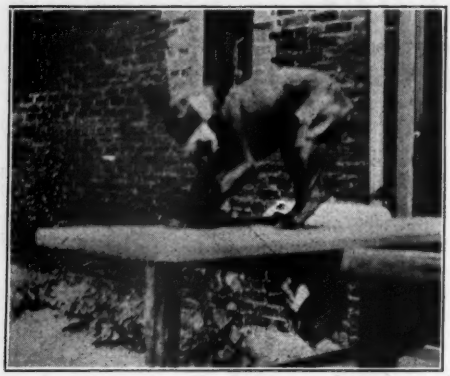
the treatment of the basic cause of convulsions of the not readily removable type as that would necessitate my considering the treatment of a number of diseases mentioned in the forepart of this article which would be far too lengthy for the purpose of this paper.

DOG AFFECTED WITH DIABETES MELLITUS



I am enclosing snap shot of a recent case of diabetes mellitus. Under diet treatment the patient did fairly well for a period of six months. The snap shot shows the patient in a state of coma (vigil) in which condition it remained for several days, and was then destroyed. Postmortem examination showed all lesions in the pancreas—F. R. Whipple.

REPORTS OF TWO CASES OF PARALYSIS IN DOGS TREATED WITH UROTROPIN

Case No. 1. English setter, male, age about 15 months. This dog has had distemper when about 7 or 8 months old and apparently had made a good recovery. Was brought to hospital on June, 16, 1923 completely paralyzed, unable to even raise the head. The owner stated that the animal had been apparently all right the evening before. This dog received 15 to 30 grains of urotropin daily, intravenously. In one week's time, if picked up and placed on his feet, the dog could walk about the hospital. Died on June 27, 1923 during the night.

Case No. 2. Llewellin setter, bitch, age about 2 years. If this dog had ever had distemper she had had it before owned by her present owners. She was brought to hospital on July 16, 1923, unable to stand. If raised up on her breast, she would hold the position a few moments and then fall over. Believing that the dose of urotropin had not been large enough in case No. 1 we gave this dog 60 grains daily for 5 days, missed for two days and then gave 60 grains again for 3 days at which time the animal could raise herself and sit on her haunches and would hop along the floor similar to a frog. Recovery from this time on was rapid. The dog received, in addition to the urotropin, Fowler's Solution of arsenic and fluid extract of nux vomica. Both hips became badly emaciated the first few days of the paralysis but have since become about normal. The only ill effect of the urotropin, if it can be called ill effect, was that it caused frequent urination. The dog was ready to be discharged from the hospital July 30, 1923 but was left here by the owner a full month.

Greenville, Miss. E. S. Norton.

AN INTERESTING CASE OF FOREIGN BODY

Maltese terrier, female, weight 2½ pounds and aged one year, fell sick July 11th with symptoms of wretching, sitting on her haunches and periodically screaming with pain, then would stop, lie down and be quiet. Becoming alarmed the owner took the patient to an animal-society clinic where a diagnosis of colic was made. Treatment was administered but with no improvement. The symptoms becoming more aggravated and the writer was consulted and made a thorough examination.

Examination not Fruitful

The temperature, pulse and thoracic sounds were normal. Suspecting foreign body a careful palpation was made of the esophagus, thorax and abdomen but nothing was detected, except that there was extreme pain evinced on brisk palpating the region of the stomach. There was no pain when the region was carefully pressed upon. Mineral oil and emenas were administered together with small doses of narcotics. X-Ray examination gave negative findings. The symptoms continued until July 16 when the patient suddenly weakened and died, although she had retained all liquid food and the bowels had moved freely.

Autopsy Reveals Bone Impinged in Esophagus

The autopsy was conducted in the presence of Dr. Victor Carabba and a physician. The gastro-intestinal tract was normal except that the stomach was tremendously distended with what proved to be almost the total volume of the patient's blood. The thorax contained

some fluid. The trachea and lungs were normal. On removing the esophagus from the pharynx downward a piece of bone was found lodged 1½ centimeters posterior to the entrance of the thorax, lying between the lobes of the thymus. The bones measured 25 millimeters long, 18 millimeters wide and about 2 millimeters thick. It had sharp and ragged edges and had cut its way through the esophagus, and rested in part of the thorax. In the last acute attack of pain the spicula cut into one of the branches of the jugular confluent and bled the patient to death. The blood passed into the esophagus and was swallowed into the stomach where it was found postmortem. "Internal hemorrhage" was written on the health certificate.

Hackensack, New Jersey. I. Rubenfeld.

ASCITES IN A COLLIE

One of my clients has a male collie with the following abnormal condition: The abdomen is greatly swollen and filled with liquid which I have removed several times without giving any permanent relief. I have administered tonics and internal antiseptics. He is lively and has a ravenous appetite. Would you please have your dog specialist outline the proper treatment for such a case?—New Jersey.

Reply: Ascites is but a secondary condition to some definite lesion that obstructs the venous circulation of the abdominal organs. The lesion may be as remote from the abdomen as the tricuspid valves, but usually it is found in the liver. When the portal circulation is obstructed by a hepatic disease (cirrhosis, tumor, etc.), the portal vein or any of its large radical are encroached upon by extrinsic pressure, or the renal vein is occluded, serum transudes into the peritoneal cavity faster than the peritoneum can absorb it, and thus accumulates in sufficient quantity to cause bulging of the abdomen. Drawing the fluid off can therefore do no great amount of good other than that of relieving the physical impediment. The disease itself is not benefited in the least, although some cases refill so slowly that the life of the subject is prolonged or at least made more comfortable. The life of a favorite pet can sometimes be carried along for several years to the entire satisfaction of those interested by drawing off the fluid, but the causative lesion, being generally of an incurable character finally ends fatally. Careful feeding with pure, healthful food, a reasonable amount of regular exercise and cautious medication with potassium iodid is about the best line of treatment to employ.

THERE IS NO SUBSTITUTE FOR EXPERIENCE

And in the practice of veterinary medicine the above applies.

When you face one or more of the numerous cases that do not present a clear symptomatic picture, of obscure history, incomplete clinical record, then—experience counts.

The same is true with respect to biologics and medicinals. It is experience that suggests direct treatment and Bacterins are probably the most valuable and effective means available for ready administration and quick results.

Experience, too, will determine the brand of Bacterins you prefer—thousands of successful Veterinarians use the Z-S brand exclusively—they accept no substitute for quality either.

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Chicago, Ill.

Spirochetosis Icterohemorrhagica

(Sore Mouth of Dogs)

The specific etiologic factor is the delicate spiral-shaped parasite, Spirocheta icterohaemorrhagiæ, isolated by Inada and his associates. This organism is present in the blood during the first stage of the disease and in the urine after ten to fourteen days. Ido and Hoki have shown that the affected animal spreads the infection by means of its urine. The disease is transferable by direct blood inoculation. One attack confers a certain degree of immunity. Our first belief that this disease commonly called "sore mouth," "Stuttgart's disease," or "canine typhus" was due to a spirochete and spread by the urine from infected rats was determined in 1919. When we were called to treat an outbreak in a large kennel, we employed Dr. Asa Chandler from the biology department of Rice Institute to assist us in our microscopic work in determining the cause if possible. Out of forty cases we were privileged to hold autopsies and make microscopical examination from the lesions of five dogs, blood examination from ten cases and microscopic examination of specimens from eleven rats found and destroyed on the place. From the five dogs autopsied we were able to demonstrate the spirochete in the mouth lesions of three and in the bladder and secretions of macerated kidneys of all of them, and in the blood of three living cases. The spirochete was demonstrated in the urine, pipetted direct from the bladder and centrifuged, and macerated kidneys of nine rats, two of the rats killed showing negative microscopical findings. In all cases treated to date our laboratory examinations have confirmed these findings.

Symptoms

The onset may be sudden with a chill, abdominal pain and vomiting, excessive salivation and

"PETER PAN" SUCCEEDS "LADDIE BOY"

"Peter Pan", one of the finest specimens of wire-haired fox terriers is now the watch dog of the White House. He was presented to President Coolidge by Dr. A. Howard of Boston.

a regular fever (102°-105° F.) develops, intense soreness of the muscles is noticed, in some cases jaundice, usually moderate, appears in from three to five days. The urine is albuminous and usually contains a variety of tube casts, and the blood shows a moderate leucocytosis. Prostration is almost always pronounced, hemorrhages from the mucous membranes usually occurs and the typhoid state may supervene. The fever continues for a few days or a week and then gradually subsides. Recovery usually ensues, but relapses are not infrequent and convalescence is likely to be slow. The mortality has not often exceeded 10%, but some outbreaks have been reported running as high as 45%. In the diagnosis, other forms of infectious or toxic jaundice must be considered.

Treatment

Two and a quarter grains of neo-arsphenamin (Metz) is injected intra-peritoneally, one grain of calomel and one-half an ounce of Phillip's milk of magnesia is given once a day. Careful nursing, i. e., washing the mouth with Phillip's milk of magnesia in the cases where the mucous membranes of the mouth are affected, force feeding, hot baths, alcoholic rubs, and in cases where jaundice persists calomel is given until the discoloration of the skin and membranes disappear. When the neo-arsphenamin was not used but the rest of the procedure carried out, recovery resulted in many cases.

The extermination of rats is an important factor in the prophylaxis.

Drs. Kirkwood and Horning.

Houston, Texas.

Professor Lukes of the veterinary school of Brno (Tcheco-Slovaka) has found spirochetes in the kidneys, pancreas, aorta, pulmonary artery, spleen, and lungs of dogs affected with hemorrhagic gastro-enteritis, and believes that the organism which he calls the Spirocheta melenogenes canis is the cause of that disease. —Zverolekarsky Sbornik (1923).

Vaccination against rabies, although it has saved countless lives is not 100% effective. Fatalities likely to occur from bites about the face in spite of prompt treatment, and occasionally immediate vaccination fails in bites elsewhere. The New York City board of health follow bites in the face with a second treatment and request all patients to return in 6 months, for the third.

To the Veterinary Profession Only

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QUICK — SAFE — EFFECTIVE

Kills and expels Tapeworm 20 minutes after administration.

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Swine Section

An Experiment on Serum-alone Treatment of Hog Cholera

By E. W. Potter, Reynoldsville, Ohio. Assistant Pathologist, State Serum Institute.

OBJECT of Experiment:—To determine the possibility of producing active immunity by the administration of virus at different intervals after serum-alone treatment, and incidentally to determine the duration of passive immunity, when tested by the direct injection of virus.

Explanation

Frequently an immunity is desired under conditions which would make the administration of virus a dangerous procedure. For example, sows which are to farrow in a short time, show hogs to be shipped to fairs, and stock hogs shipped for feeding purposes. Especially in the latter instance, shipping would furnish some chance for infection with cholera, making immunity desirable and at the same time resulting exposure, together with a change of feed and other conditions, could so lower the animal's resistance that the immediate use of virus would be inadvisable. The most universally recognized method of procedure in these instances has been the use of what is known as the "follow-up" treatment. This consists of the use of serum-alone, for immediate protection, followed in three or four weeks by serum and virus under more favorable conditions. This procedure doubles the cost of immunity and it was realized that if instead of the second treatment consisting of serum and virus, an administration of virus alone could be given with relative safety, and yet establish the same degree of active immunity, the cost could be reduced practically one-half. For the purpose of establishing the degree of safety, as well as the efficiency of this method, the following experiment was conducted.

Description

Twenty-four shoats averaging about 50 lbs. in weight were obtained from a farm where an accurate history of conditions was available. These shoats were each given an intra-abdominal injection of 40 cc of clear serum. On each succeeding seventh day, thereafter, one lot of four pigs was given an injection of 2 cc of hog cholera virus, making six lots, injected a week apart. With one exception all pigs remained healthy up to and including the fifth week. All pigs receiving virus the sixth week showed an elevation of temperature on the fourth day and loss of appetite on the sixth day. They were killed for diagnosis on the eighth day and showed distinct lesions of cholera.

With the exception of one pig (No. 664) in the third week, which developed cholera after ten days and was killed as a chronic case ten weeks later, the immunity seemed to be absolute for the first five weeks, although there was a slight temperature reaction in all pigs in the fifth week. The pigs injected the sixth week, however, seemed to have no resistance to infection. This would indicate, in this instance, that the passive immunity expired between the fifth and sixth week.

To test the duration of the active immunity produced, one pig in each of the first five weeks was subjected to infection by inoculation, the fourth, fifth, sixth and seventh month after receiving virus. The immunity remained absolute in all hogs.

Summary

When tested by direct inoculation, passive immunity protected pigs for five weeks in one instance. The active immunity produced did not vary up to and including the seventh month, regardless of when the virus was given after serum-alone. (See charts 9 to 18 inclusive.)

(A) TEST OF ACTIVE IMMUNITY PRODUCED BY USE OF VIRUS AT DIFFERENT INTERVALS AFTER SERUM ALONE. (B) TEST OF DURATION OF PASSIVE IMMUNITY

(B) Test of Passive Immunity

First Week

Treatment:—Serum December 28, Virus January 4.

Record of temperature and physical reaction.

Pig No.	655	656	657	658
Jan. 5,	102.6	102.4	102.2	103.0
" 6,	102.4	102.8	103.2	103.0
" 7,	103.0	102.0	103.0	102.2
" 8,	102.6	103.2	102.0	103.0
" 9	102.0	103.0	102.0	102.6
" 10,	102.4	103.2	102.4	102.6
" 11,	102.8	103.6	102.4	103.0
" 12,	102.4	103.2	102.6	102.8
" 13,	103.0	102.8	103.0	102.8
" 14,	103.2	103.0	102.2	102.6
	RW.	RW.	RW.	RW.

Second Week

Treatment:—Serum December 28, Virus January 11.

Record of temperature and physical reaction.

Pig No.	659	660	661	662
Jan. 12,	102.2	102.4	102.6	103.4
" 13,	102.2	102.0	102.8	102.8
" 14,	101.8	102.0	102.4	102.8
" 15,	102.0	102.2	102.4	102.6
" 16,	102.6	102.0	102.0	102.6
" 17,	102.4	101.6	102.0	102.8
" 18,	101.0	102.0	102.0	102.4
" 19,	102.0	101.8	102.4	102.2
" 20,	102.8	102.4	102.6	102.2
" 21,	103.2	102.4	102.2	102.6
	RW.	RW.	RW.	RW.

Third Week

Treatment:—Serum December 28, Virus January 18.

Record of temperature and physical reaction.

Pig No.	663	664	665	686
Jan. 19,	103.2	103.0	102.6	102.4
" 20,	103.0	103.2	102.8	102.0
" 21,	102.6	103.2	102.4	101.6
" 22,	103.0	103.0	102.8	102.2
" 23,	102.2	102.6	102.2	102.4
" 24,	102.6	102.8	101.8	102.0
" 25,	102.0	102.6	102.4	102.6
" 26,	103.2	102.6	102.8	102.2
" 27,	101.8	103.8	102.6	102.6
" 28,	102.4	105.0	101.8	102.2
	RW.		RW.	RW.
Jan. 29,	105.0			
" 30,	104.2*			
" 31,	103.6*			
Feb. 1,	103.8*			
" 2,	103.2*			
" 3,	102.6*			
" 4,	102.4			
	KC.			

Fourth Week

Treatment:—Serum December 28, Virus January 25.

Pig No.	667	668	669	670
Jan. 26,	102.0	101.8	102.0	101.6
" 27,	102.2	101.6	101.0	101.2
" 28,	101.8	101.4	101.6	102.6
" 29,	101.8	101.8	102.0	102.0
" 30,	102.0	102.6	102.0	101.6
" 31,	102.6	102.4	102.2	102.4
Feb. 1,	101.8	101.6	102.4	102.2
" 2,	102.4	102.2	102.0	102.8
" 3,	102.4	102.6	103.8	103.2
" 4,	102.2	104.6	102.6	102.8
	RW.	DI.	RW.	RW.

Fifth Week

Treatment:—Serum December 28, Virus February 2.

Pig No.	671	672	673	674
Feb. 3,	102.4	102.0	102.6	102.0
" 4,	102.4	102.2	102.6	102.4
" 5,	101.2	102.6	103.0	103.0
" 6,	101.8	104.2	102.6	103.0
" 7,	103.6	104.2	102.4	104.2
" 8,	103.0	103.4	102.2	103.2
" 9,	102.8	103.0	102.6	103.6
" 10,	102.4	102.6	103.2	103.0
" 11,	102.2	103.4	102.8	103.4
" 12,	102.6	102.4	103.6	103.0
" 13,	102.0	101.6	102.8	102.2
	RW.	RW.	RW.	RW.

Sixth Week

Treatment:—Serum December 28, Virus February 9.

Record o f temperature and physical reaction.

Pig No.	675	676	677	678
Feb. 10,	102.4	103.2	103.6	103.6
" 11,	102.2	102.8	104.2	103.6
" 12,	102.6	103.6	103.4	104.2
" 13,	103.6	103.2	105.6	104.6
" 14,	104.4	106.0	105.6	104.8
" 15,	105.0	105.4	104.8*	104.6*
" 16,	104.6	106.2	104.2	104.4
" 17,	105.6*	105.0*	105.4*	104.4*
	KD.	KD.	KD.	KD.

FOR
NINE YEARS

"We have produced anti-hog cholera serum and virus and nothing more; and we believe we have done that well. Our patrons think so too."

GUILFOIL SERUM COMPANY
Offices and Laboratory
18-20-22 North Second Street
KANSAS CITY KANSAS

(A) TEST OF ACTIVE IMMUNITY PRODUCED FROM USE OF VIRUS AT DIFFERENT INTERVALS AFTER SERUM-ALONE

Immunity of Four Months Duration

Treatment:—Immunity produced, Serum December 28.
Virus on 1st, 2nd, 3rd, 4th and 5th week, respectively, following serum.
Immunity tested, 2cc virus May 4.

Record of temperature and physical reaction.

Pig No.	655	659	663	667	672
May 5,	102.0	102.0	102.2	101.4	101.0
" 6,	101.6	102.4	101.0	102.2	101.4
" 7,	102.2	101.6	101.8	101.0	101.2
" 8,	101.0	102.0	102.0	101.0	101.6
" 9,	102.0	101.6	101.4	101.8	101.0
" 10,	101.4	101.0	102.0	102.0	101.2
" 11,	102.4	101.8	102.0	101.0	101.6
" 12,	102.8	101.4	102.6	101.6	101.0
" 13,	103.0	101.6	102.8	101.0	101.4
" 14.	102.6	101.4	102.6	101.4	101.4
	RW.	RW.	RW.	RW.	RW.

Immunity of Five Months Duration

Treatment:—Immunity produced; Serum December 28.
Virus on 1st, 2nd, 3rd and 5th week, respectively, following serum.
Immunity tested; 2 cc virus June 7.

Record of temperature and physical reaction.

Pig No.	656	660	664	673
June 8,	101.4	102.0	103.4	102.6
" 9,	101.6	101.8	104.6	102.0
" 10,	102.0	101.4	104.0	102.4
" 11,	101.4	101.4	103.4	102.4
" 12,	101.4	101.8	103.4	102.0
" 13,	101.0	101.4	103.0	102.0
" 14,	100.4	101.6	103.6	101.6
" 15,	101.0	102.0	103.4	102.0
" 16,	101.2	101.4	103.2	101.8
" 17,	101.6	101.8	103.8	102.0
	RW.	RW.	RW.	RW.

Immunity of Six Months Duration

Treatment:—Immunity produced; Serum December 28.
Virus on 1st, 2nd, 3rd, 4th and 5th week, respectively, following serum.
Immunity tested; 2 cc virus July 12.

SWINE WORM CAPSULES

All materials for these products have shown sharp advances in price in the last thirty days. We advise our customers to BUY NOW, thereby protecting themselves against further advances.

NO. 136. Oil Chenopodium Compound

An Oil of Chenopodium Worm Capsule for Swine.
Composed of: Oil Chenopodium—5 grs., Creosote—3 grs., Oil Croton—3 grs., Copper Sulphate—3 grs., Absorbent v-s.

Price Per 1000 Capsules, packed 25 in a box, $20.00

NO. 305. Vermuloids, For Swine

Composed of: Thymol—2 grs., Cresote—3 grs., Aloin—5 grs., Chenopodium—3 grs., Areca Nut—4 grs., Calomel—3 grs.

Price Per 1000 Capsules, packed 25 in a box, $15.00

NO. 330. Santonin Worm Capsules

The Genuine Santonin Swine Worm Capsule. Composed of: Santonin—2½ grs., Aloin—2½ grs., Calomel—2½ grs.

Price Per 1000 Capsules, packed 25 in a box, $90.00

THE EAGLE CO.

38 South Seventh St., Kansas City, Kans.

Record of temperature and physical reaction.

Pig No.	657	661	665	669	674
July 13,	102.2	101.8	101.6	101.0	101.6
" 14,	101.0	101.4	102.0	101.4	102.0
" 15,	101.6	101.0	101.2	101.8	101.0
" 16,	101.2	101.0	101.6	101.0	101.4
" 17,	102.0	101.8	101.0	100.8	101.8
" 18,	101.8	102.2	101.6	101.0	102.0
" 19,	101.0	101.6	101.2	100.0	101.0
" 20,	101.8	101.8	102.2	100.0	101.6
" 21,	102.0	101.4	101.6	99.6	101.0
" 22,	101.2	101.0	101.4	99.0	101.6
	RW.	RW.	RW.	RW.	RW.

Immunity of Seven Months Duration

Treatment:—Immunity produced; Serum December 28.
Virus on 1st, 2nd, 3rd and 4th week respectively, following serum.
Immunity tested; 2 cc virus August 15.

Record of temperature and physical reaction.

Pig No.	658	662	666	670
Aug. 16,	100.6	101.0	101.6	102.0
" 17,	101.2	100.6	101.0	101.0
" 18,	100.4	101.0	100.0	101.2
" 19,	101.2	99.6	101.4	101.0
" 20,	101.0	100.0	100.2	101.2
" 21,	99.0	101.0	100.6	101.0
" 22,	98.6	101.0	100.0	99.0
" 23,	100.8	101.4	101.0	100.4
" 24,	101.4	101.0	100.4	101.0
" 25,	101,0	100.4	100.0	100.6
	RW.	RW.	RW.	RW.

Explanation of signs and abbreviations

*—Loss of appetite. D.—Died. d—Diarrhea. D.I.—Died from injury. K.D—Killed for diagnosis. R.W.—Remained well. R.—Recovered. K.C.—Killed as chronic.

THE COMMON SWINE DISEASES

I have just returned to the Corn Belt to practice after an absence of more than ten years, and must confess that I am none to familiar with the so-called common diseases of swine, although I have practiced for more than 25 years. When practicing in this district fifteen years ago we were never called upon to treat hogs. Everything was called cholera and no one but fakirs attempted to treat it. But since vaccination against cholera has become so important the chief work of the practitioner here centers upon hog diseases of one kind or another. I would like to know the names of the principal ailments of swine in this region in order that I may be able to make progress in my studies of them.—Illinois.

Reply: The common swine diseases you are likely to encounter in your new field are hog cholera, swine plague (hemorrhagic septicemia), "flu," worm infestation, necrotic enteritis, tuberculosis, abortion disease, mammitis, metritis, bull nose (necrotic rhinitis), paralysis of the hind quarters, pneumonia, swine erysipelas, thumps, and various skin diseases.

Besides these hogs are susceptible to the ordinary ailments of domestic mammals, locomotory, digestive, nutritional, respiratory, and urinogenital.

CHOLERA-AFFECTED HOGS ARE NOT ENDANGERED BY VIRUS

Some months ago I vaccinated a bunch of hogs affected with cholera but most of them died. Each one received the usual dose of virus and an increased dose of serum. I used all precautions possible in the administration and warned the owner that most of them were likely to die. They did. Only five survived, and now he refuses to pay the bill on the grounds that no virus should have been given to cholera-affected hogs. Was I wrong in giving the virus?—Oklahoma.

Reply by A. T. Kinsley: There is a variety of conditions that might have been responsible for the loss of the hogs that died after they had been treated with serum and virus. If the hogs were affected with hog cholera, the quantity of virus administered in the simultaneous treatment would be of little or no consequence, and would, in my judgment, be responsible for the loss of swine after vaccination.

In other words, if swine are already infected with the filterable virus they would contain from one to three or four quarts of virus and the addition of two to four cc. more would not be responsible for any serious after-effects. If the hogs in question were affected with some other disease than hog cholera it would probably not have been advisable to use the virus treatment for the immunization against hog cholera.

Parturient paralysis of sows is attributed to osteomalacia by European authors. Saline purgatives and a diet of eggs, milk, oat meal and linseed is given as a successful treatment.

Hog cholera was once attributed to eating new corn. There was a reason, and that reason should be taken into account when deliberating over herd diseases at this season of the year.

TAGGED HOGS LEVY
HEAVY TAX ON TRADE
Janesville, Wis., August
In the month of June, 1923, five
Wisconsin packing houses killed 137,
455 hogs. The federal authorities
found 36,968 hogs, or 26%, infected
with tuberculosis.
90% of this infection is caused by
feeding skim milk, whey or buttermilk
from plants that do not live up to the
law on pasteurizing says Wisconsin
Live Stock Sanitary Authorities.

Semi-Solid Is Safe Milk

Veterinarians have always realized that milk was one of the best feeds and tonics they could recommend for ailing herds and flocks. The steady increase of tuberculosis among cattle, however, has made many veterinarians fearful of results lest tuberculosis be transmitted through the milk to the herd they were trying to cure.

Many veterinarians now make extensive use of Semi-Solid Buttermilk in such cases for they know it is thoroughly pasteurized for several hours, is packed in air-tight containers and is free from tuberculosis, contagious abortion and other disease germs.

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is pure creamery buttermilk, pasteurized and condensed to point of maximum medicinal value per pound and is prepared in containers ranging from 1 gallon to 500 pounds.

For the veterinarian's use we put up a case of six 1-gallon cans selling for $4.00, F. O. B. Chicago. This gives the veterinarian a small, immediately available supply for the use of his clients.

Twenty-eight factories assure low freight costs and the ability to secure Semi-Solid Buttermilk from convenient points.

Write today for full information on the value of Semi-Solid and the name of nearest dealer from whom your clients can quickly get their supply.

CONSOLIDATED PRODUCTS CO.
4750 Sheridan Road,
Chicago, Ill.

The Field of Swine Practice and Its Relation to the Practitioners

E. R. Steel, D. V. M., Grundy Center, Iowa.

The field of swine practice covers the entire year. For convenience, we may start this discussion with the breeding period of sows, consider the care and feeding of the pregnant sow, touch upon the little pig troubles, deal with the weaning age which is full of bacterial infections and parasite invasions, review the cholera immunization problems, and finally treat the flu situation.

All the above details to be considered in such a paper can be handled only in a general way in the allotted time. However, definite suggestions may be made which may prove of value.

The relation of all these phases of swine practice to the practitioner may be shown to be of considerable consequence. If the practitioner is to meet the needs of the swine industry, he must qualify to handle its problems the very best he can. If he endeavors to master all the intricacies of swine diseases he should receive a liberal recompense for his services and he should be protected from outside influences.

Breed for Uniformity in Size

I have considered that it is the practitioner's duty to advise his clients to breed in such a way that the litters will come all within a few weeks so that mixed sizes and ages may be avoided to a great extent. If twenty sows are desired for breeding a half dozen more should be bred so that those that do not conceive may be shipped and still there be the desired number. The raising of mixed sizes and ages complicates the disease factor for under-nourished, unthrifty pigs are the better prey for little-pig infections. The proper advice for the breeding of brood sows is one of the practitioner's obligations to his clients and constitutes a phase of swine practice. His remuneration for his service will come later on when immunization against cholera will be rendered more satisfactory and less hazardous than in herds of many sizes, ages, and consequent varied vitality.

Abortion a Real Problem

The proper care of the brood sows and their food then becomes a factor in the practitioners' business. The balanced ration, privilege of liberal exercise, inclusion of a mineral mixture in the diet, and the handling of abortion disease are all questions that concern the client at this period. A simple mineral mixture may be sold at a low cost to the owner and at a fair profit for the veterinarian. In the handling of commercial products, the vitamin and mineral content in feeds must not be neglected. Sows slinking their pigs is becoming a real problem. Sanitary measures must be adopted to control this, for as long as the other sows may eat the dead pigs, the placentae, and food contaminated with the discharges of infected associates, the spread of abortion, sterility, birth of dead pigs or weak pigs may be the sequence of such carelessness. The disinfection of the premises or moving of healthy animals to new quarters, the isolation of aborting sows, I have found effective in handling this disease. The use of biologics may prove of value, but as yet their application has not been reported sufficiently to warrant disregard for sanitary measures. Articles for the local paper on the care and treatment of brood sows may be contributed by the practitioner and will help populate his territory with pigs.

Little-Pig Troubles Increasing

Troubles with little pigs seem to increase each year and they are brought to the veterinarian for solution. The first week white scours sometimes gets started in herds and the loss may be excessive. Cleaning the quarters, feeding of the sows milk in which formalin has been put so that it may be eliminated thru the mother's milk to the pigs, and isolation of infected litters may alleviate the condition. The use of biologics such as white scours serum may be of value if the pigs are thought worth the expense. The use of bacterins in very little pigs has never appealed to me as good practice. Scours in pigs several weeks old is usually due to the nature of the feed. A change of diet often corrects this. Turning sows on the pasture will scour pigs frequently and this responds to taking them off grass and letting them get used to it gradually. To handle scours, a study of each herd must be made.

"Flu" Kills Whole Herds

"Flu" in little pigs this year has killed whole herds, for it seems to be more severe with them than with older pigs. In my opinion, the death from "flu" itself is never great, but secondary organisms take advantage of the lowered vitality to produce pneumonia, pleurisy and enteritis. The little pigs are the easy prey for such infections.

*Read before the Illinois S. V. M. A. and University Conference, July 10-12, 1923.

The exclusion of cholera as a complicating factor has been demonstrated in some of the herds with heavy losses by the failure of older weaned pigs to contract the fatal conditions. We are using the term "flu" for lack of a better name. It is simply a condition in which a large per cent of the pigs thump and develop respiratory disturbances. As for treatment, nothing has proved entirely satisfactory to me. Guiacol, laxatives for the sow, have failed to check the loss in some herds.

Obstetrics Not Always Remunerative

As for swine obstetrics, this is largely a matter of personal choice between pulling pigs and the cesarian section operation. Some veterinarians in my community claim to operate on over 100 cases a year and save as high as 85 per cent of the cases. Neither method is highly remunerative for the practitioner, but these cases constitute part of the business of spring and they must be attended to even tho they are often accommodation jobs.

Charge by the Hour for Castration

In speaking of surgery, I believe that six weeks old or before the weaning time is the best age to castrate pigs and they can be handled by having the assistant sit on a chair holding the pig's four feet in his two hands and the operator sitting in front of him, making the work easy and certainly the pigs get along better at this age than at any other time. I charge a trip and $2.00 an hour over the first hour for this work. A clean place to work and a sanitary place to keep the pigs afterwards is important. Other operations on pigs are minor and will not be discussed in this paper.

Weaning the Age Infections Begin

The weaning age now brings with it the parasitic invasions and bacterial infections. Due to the time it takes for ascaris worms to go through their stages of development in pigs, we find that usually not until weaning or after do they bother much. In talking to farmers who have made it a practice to give pigs a month or so old a physic every ten days or two weeks, I have been led to believe that such a practice may mechanically wash some of the developing ascaris worms out of the stomach and small intestine where they seem to live almost exclusively in the pig. Later on a physic will not remove them.

Anthelmintic Treatment Outlined

However, following anthelmintic treatment, by which they are stupefied if not killed, the worms can be removed readily and this should always be resorted to in any treatment against worms. It seems that these worms have the faculty of re-

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sisting peristalsis, but when overcome by the drug, they are powerless and they may be easily washed out by the use of large doses of either Epsom or Glauber salts, the latter being the less difficult to get the pigs to take in slop. Some laymen resort to the use of physic before giving the anthelmintic, but I have not found this necessary and I think it only weakens the pig rather than the worms. Regarding the starvation period, 24 hours and perhaps 12 hours is sufficient, for it is only required that the stomach and small intestine be empty so as not to dilute the anthelmintic. I have used both santonin in combination with oil of chonopodium in tablet form and oil of chenopodium in oil through the stomach tube. The physic may be given 6 to 12 hours later according to how thirsty the pigs are and how readily they take it. Milk or other appetizing slop should be used as the vehicle. The prevention of worm infestation by sanitary measures is hard to get farmers to attempt, but it should be called to their attention.

Many Infections Menace the Young

Bacterial infections such as swine plague or hemorrhagic septicemia and necrotic enteritis, in its different forms, add to the disease problems of the pig at this age, or earlier. Pigs may do well until a month or so old and then some of them start to go backwards in their condition. Sporadic cases of pneumonia or pleuro-pneumonia with thumps, which may hang on for weeks, develop. In some herds many individuals get it as it progresses slowly through the herd. Bacterins in my hands have utterly failed to cure or prevent this condition. It may be handled by sanitary measures, comfortable housing, plenty of ventilation, prevention of runts, and other means by which the resistance is kept high. In my opinion, hemorrhagic septicemia is practically always due to a lowered vitality through which this type of organism becomes pathogenic.

Necrotic enteritis is recognized in herds by the appearance of chronic diarrhea, unthriftiness, lean starved condition and is differentiated from worm infestation largely by the pot belly, wrinkled hide, and rough hair found in the latter. Both conditions may be present in the same animals. Following worm treatment, the pigs do wore for a time due to the added irritation. In attempting to overcome this malady, the use of slops such as mixtures of oil meal, low grade flour, oats or corn ground fine and copper sulphate in the drinking water may be of value. Solid foods, mineral mixtures and physics must be avoided. A change of pasture, change of feeding place or sanitary drinking facilities are important for the pig eats his own feces which are full of the organisms causing the trouble. Destruction of carrier or their isolation is advisable, although they should not be shut up in close quarters.

Immunization Troubles Reviewed

Immunization problems may be reviewed now in the consideration of the important part of vaccination against cholera in the field of swine practice. Having recently written my opinions on troubles met in immunizing against hog cholera, I shall only review them in brief. Even if suckling pigs could be immunized uniformly against cholera, I would not advise the routine practice of vaccinating them, for the reason that many pigs must go through many of the little pig diseases and a large per cent of them die; furthermore, whatever happens to a pig after vaccination is blamed on vaccination and by avoiding this hot bed of infections and parasitic invasions through treating pigs after they are weaned and in good condition, the pigs continue to do well and immunization is thus encouraged. It is possible also to stunt pigs for life by giving them a low grade of cholera by not overcoming

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devitalizing influences. A pig 20 or 30 pounds in weight in poor condition takes as much serum as one 100 pounds in weight in good condition. I will give you the summary of my opinions as expressed in my article, "Some Troubles Met in Immunizing Against Hog Cholera."

I do not believe immunization of suckling pigs is safe, as a routine practice.

The proper age to vaccinate is after weaning, and when pigs are in good condition.

Pigs with ulcerative enteritis should not be vaccinated as a routine practice, but if cholera is suspected, they may be given the simultaneous treatment, with increased dosage of serum.

Wormy pigs may be treated for worms at time of immunization, but they should be treated before, if possible, so pigs will be in a thrifty condition.

Pneumonia or swine plague should be considered as often secondary to hog cholera, and cholera should be eliminated as a primary factor.

Hogs with "flu," if cholera is suspected, or if they are exposed to cholera, may be given the simultaneous treatment, if dosage of serum is increased.

Serum-alone treatment in sick herds or individuals should be avoided, unless the simultaneous treatment is administered soon afterwards.

A careful technic of administration should be mastered and acquired as a habit by veterinarians.

Serum and virus should be handled in the field the same as they are in the laboratory, and a record should be kept of each herd treated.

U. S. inspection is a guide to producers, but it is not a guarantee to the user that serum and virus so produced are uniform as to merit.

Cost of immunization may influence the character of work done.

"Breaks" More Common in Autumn

After the period of immunization, outbreaks of cholera sick hogs occupy the veterinarian's attention and in fact he may have these outbreaks any time of the year, although they are more common in the fall. "Hog flu" too may come at any season, but the fall seems to be its season of greatest virulence and occurrence. It is usually recognized by the sudden appearance of thumps and cough with a high fever involving most of the herd within a few days. It may disappear as suddenly with little or no loss. The

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1 gal. per gal.	$6.08
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Castor Oil USP to make	1 gal.
1 gal. per gal.	$6.18
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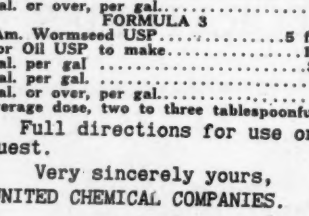

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main factor to consider is whether cholera is associated with it. In an outbreak in my county in which 12 per cent of the hogs died with cholera in 1921, I observed very few herds in which "flu" symptoms were not evident. None of the immune herds had heavy losses.

For treatment of "flu", a laxative in the slop, comfortable dry quarters free from dust and possibly a respiratory eliminant are useful.

Swine Practice of Capital Importance to Corn-Belt Veterinarians

I have stated that the relation of all these phases of swine practice to the practitioner may be shown to be of considerable importance. In the Corn Belt, swine practice constitutes the major portion of the veterinarian's business in many cases and it plays a large part in keeping men in practice even though it is of less importance. While the profit per head in handling hog diseases is very small, the herd treatments multiply the small margin into a fair fee. Besides, much of the work comes in the summer and fall when other business is slack and it certainly holds the practitioner from otherwise having to give up his profession due to its becoming unprofitable. Furthermore, much grief of winter and spring driving with their high expense and unpleasant weather conditions, are forgotten in the more agreeable and remunerative summer swine practice. Through his income derived from swine practice, the veterinarian is enabled to pay his bills and obligations which he would not be able to meet if it were not for this work coming at seasons mostly when the operating expense is low due to good roads and herd treatments enable him to put by some savings. Swine practice, then, constitutes one of the main elements in the keeping of the practitioner in the community. It must not, however, cause him to neglect the other phases of practice, for if he expects the patronage of his clients in this work, he must meet their needs at all times.

Must Study Available Literature

If the practitioner is to meet the needs of the swine industry, he must qualify to handle its problems the very best he can. As I have shown, he must be a student of the multiple hog diseases and their complications and be able to advise his clients concerning the feeding and care as well. To do this requires that he read all the available literature he can find time to look over, that he read his veterinary journals, that he have his name put on the mailing lists for receiving government and experiment station bulletins, and that he attend the veterinary conventions within his reach to obtain the interchange of ideas and

working plans of his fellows in the profession. Further, he must correlate these suggestions with his own observations and his own experiences and attempt to solve the problems presented to him in swine practice.

"Loose" Work Deplored

The practitioner has been criticised for "loose" work and for poor results in his immunization work against hog cholera in some instances. Official veterinarians and others representing the profession who have had to face this criticism have been forced to admit that some veterinarians in practice have fallen short of what should be expected of them judging from the reports of farmers and a few legislators who point to some particular case as an example of the profession's failure to do better than laymen in this work. One thing certain is that if veterinarians are to hold their immunization practice, they must demonstrate that they can do this work better than the farmer himself.

With the present outlook in this regard, the practitioner's ability to handle immunization problems well, is his only protection from inroads that may be made into his business. Certainly, he will not hold this work by lowering his prices to such an extent that he will be tempted to cut corners in order to meet lay vaccination. With the farmer buying serum at practically the same price as the veterinarian, such tactics will only put the practitioner on the same plane as his farmer competitor. Work well done showing the earmarks of professional training alone will determine the ultimate outcome of this controversy.

Carefulness the Practitioner's Salvation

A careful technic of administration should be acquired as a habit by practitioners. It is not necessary to adopt another's methods or to follow certain rules; it is simply a matter of personal application of the principles of hygiene and sanitation which every graduate veterinarian should be familiar with, if he has a working knowledge of infections and parasitic invasions. Technic is something which can't be acquired in a single job; it must be mastered or acquired as a part of one's self by close attention to details until their observation becomes a habit. If the practitioner attempts to do a careful job for one client whom he thinks notices such things as cleanliness and carefulness, he will find himself at a loss to carry out his intentions if he has paid little or no attention to these matters in his general run of work. Some men will drive the hogs into a dirty dusty hog shed, order the owner to

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Live Stock Poisoning

By Professor L. H. Pammel, Ames, Iowa.

PRICKLY SIDA

An Iowa reader sent a specimen of prickly Sida stating that four hogs died in pasture containing the plant. Very few of the plants of this family are considered poisonous. Common cheeses *(Malva rotundifolia)* is used as food for sheep. One of the few suspected plants of the family is the Indian mallow or Butter print *(Abutilon theophrasti)* which is common in the Mississippi Valley.

IS CORN SMUT POISONOUS?

The corn this year has a lot of smut on it or large bunches of black dusty substances the size of your fist or larger. If this is put in the silo or shredded in the barn will it do any harm to the cattle when fed?—Iowa.

Reply: Smut is a parasitic fungus known to botanists as Ustilago zee. It has been suspected of being poisonous and statements on both sides of the controversy occur. However I can make the definite statement that it is not poisonous when eaten with other foods in a balanced ration. Corn smut is a highly nitrogenous food and when used in a one sided ration might act injuriously but the consuming of this along with other foods will not cause injury.

BUTTER PRINT AND JIMSON WEED

"Is the common Jimson and cotton weed or Butter print commonly found in hog lots poisonous to hogs? Four hogs weighing about 200 pounds died in one day and night in dry lot from what I considered poison of some nature. Postmortem examination was held on one that died the night before and showed extensive inflammation throughout the intestines. Another was destroyed that was unable to stand, front legs spreading apart, slobbering at the mouth, temperature 100° F. This one showed only inflammed stomach. All of them had slobbered, staggering before going down and died in five to ten hours. The weeds mentioned were quite numerous in the lot and the tops of most of the cotton weeds had been eaten off. Hogs had been brought in from clover pasture just a week. We saw several of them eating the cotton weeds and a few eating Jimson. They were being fed corn, tankage and Natural Hog Remedy. Hogs were shipped the day I saw them and have had no more word from them. Information will be appreciated." —Illinois.

Reply: The Butter print has been suspected several times of being poisonous and is listed in my Manual of Poisonous Plants. The Jimson weed *(Datura stramonium* or *Datura tatula)* is a very different plant than Butter print. It has a prickly capsule and large purplish or whitish flowers. This plant is poisonous and if this is the plant meant may have caused the poisoning. Jimson weed contains hyoscyamine atropin and daturin. The symptoms are dryness of the mouth, it depresses the nerve centers and causes delirium and paralysis. Dr. Allen does not clearly differentiate between Jimson weed and Butter print. The Jimson weed is common in hog lots.

IS RATTLE BOX POISONOUS TO SHEEP?

Would you kindly give me your experience concerning the danger of poisioning from this plant to sheep. The reason I ask is because some of our men are shipping in several car loads of sheep which they intend to pasture in a field which has considerable of the Rattle box in it.—Iowa.

Reply: This legume *(crotalaria sagittalis)* is widely distributed from Maine, South Dakota to Iowa. It is however not common in the West except in sandy alluvial bottoms or on sandy soil. The rattle box is related to wild Indigo *(Baptisia)* which contains a powerful toxin. The chemistry of the poision in the rattle box has not been determined. I sent a lot of the material at one time to my friend Dr. Frederick B. Power who found an alkaloidal substance in the seed. There is no question that the plant is poisonous to horses because the experiments made by Dr: M. Stalker and Dr. D. S. Fairchild indicate this: There have been many similar reports of the poisonous nature of the plant made to me. The cases reported generally indicate that horses are the chief sufferers. Dr. Stalker says "cattle sometimes, though not often suffer in the same way." Sheep may suffer though the recorded cases do not mention this. I am inclined to think ordinarily they are not affected. I would

therefore allow the sheep to use this pasture cautiously. Should any trouble arise among the sheep I should be glad to get some information.

WOOLLY-POD MILKWEED A DANGEROUS PLANT

Asclepias eriocarpa, commonly known as "woolly-pod milkweed," long since thought to be a trouble maker among sheep in California, has been found to be a dangerous plant by the United States department of agriculture, not only to sheep but also to cattle, and presumably would also poison horses if eaten by them. The symptoms described in "Department Circular 272 of the department of agriculture" are: Lowering of the head, humped back, weakness, lying down, inappetance and diarrhea. Two ounces of the plant was found to be sufficient to poison a sheep and three ounces was sometimes fatal. The dose for cattle runs the same in proportion to the weight. It was found also that the dry plant retains its poisonous properties and hence is a dangerous constituent of hay. Epsom salts or oileaginous purgatives are recommended although not claimed as curatives. The main reliances, however, must be placed on prevention.

LOCOWEED

I am sending you under separate cover, a legume plant which has caused considerable trouble on our range. This last July several head of cattle were killed by it. The symptoms seemed to be that of bloating. We would very much appreciate knowing what this plant is. The sample I am sending is only a portion of one plant. It has a large root crown similar to alfalfa.—Utah.

Reply: We have identified the plant as one of the loco weeds *(Aragallus albiflorus)* which is native from Montana to Colorado. The flowers of the plant are straw colored or yellowish white with a purple spot on the keel. It is a perennial. It differs from the real loco weed in that the color of its flowers are paler in color. Those of the stemless loco weed are purple, and the stem of the plant short. The plant sent to me is probably injurious, not however just like the loco weed. It is not uncommon for many of these legumes to produce bloating like the white clover, alfalfa, peas etc. Stock should be turned on the ranges cautiously where this plant occurs. It would be well to put these animals on green feed before turning them on the ranges.

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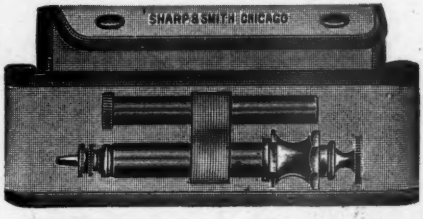

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HORSES AND TRACTORS COMPARED

It is said that fewer tractors are in use on the farms today than five years ago. They are not profitable because they do not displace any horses, and therefore are a superfluous expense. The full story is told by the Horse Association of America in the following agenda:—

Horses:—

—a farm product
—fuel is grain raised by the farmer
—create a market for grain
—last twelve years in work
—dependable under all conditions
—provide a flexible working unit
—selling value is high

Tractors:—

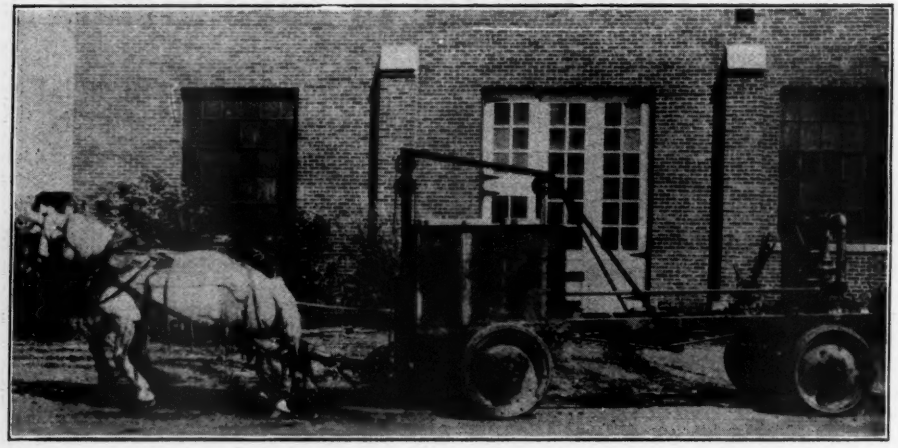
—heavy cash investment
—fuel bought for cash at retail
—destroy grain markets
—last only five years or less in field work
—wet fields, breakdowns, cause delays
—not adaptable to all jobs
—depreciate rapidly
—selling value nil

HORSE POWER

In speaking of horse-power as a unit of force, it should not be forgotten that a horse represents from 5 to 10 of these units. A team at the pulling contest of the Iowa state fair developed 21.2 horse-power. The horse must have been small or else very weak when its strength was singled out to measure power, and if the pulling contests continue to expose the inconsistency, the engineers will have to borrow some other domestic animal for the purpose; the goat or the dogs, for example. Referred to automobiles, goat-power would be the better parallel.

Profiting by the experience of American cities Paris is installing a mounted police service. A "gendarme a cheval" posted at the

PROFESSOR COLLINS' DYNAMOMETER IN OPERATION



Keystone View Company.

The above illustration is a view of apparatus to measure horse power invented by Professor E. V. Collins of the Iowa State College of Agriculture and Mechanical Arts. The apparatus furnishes a pre-determined uniform resistance. Regulation is accomplished automatically by the discharge from a pump connected with the wheels. It registers with scientific accuracy the capacity of any animal to pull a load.

Place de l'Opera three months ago as an experiment was pronounced such a success that it has been decided to add a regular mounted squad to the police service of that city.

Wilson & Company, Chicago packers, have a $100,000 six-horse draft team.

The average superiority of purebred farm animals over scrubs is said to be about 40%

Over ten thousand live stock owners with 1,500,000 head of live stock are co-operating with the B. A. I. in the "Better Sires Better Stock" campaign.

Horse flesh was eaten very generally in earlier times. The principal reason for discontinuing the use of horse flesh as food was due to an edict of Pope Gregory III, dating from the eighth century. The edict was complied with in continental Europe but quantities of horse flesh were consumed in England even as late as the eleventh century.

HEIFER EIGHT MONTHS OLD GIVES TWO QUARTS OF MILK PER DAY

Dr. Kroll, of Black Duck, Minnesota, reports that a client, Mr. Axel Oldenberg of that district has a heifer that is milking a quart of milk testing 3.4% butterfat at each milking. This little cow is in good health and otherwise a perfectly normal individual. She has not been bred. The precocious development of the mammary glands is due to constant suckling by a companion calf.

SOME MILK "NEVERS"

Never keep milk in a temperature above 50° Fahrenheit. Lower if possible.

Never place milk in vessels not scrupulously clean.

Never mix old milk with new milk.

Never place milk in open vessels.

Never recommend a milkman who does not keep a clean establishment and who is indifferent as to the sanitation of the source of his supply.

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The high medicinal value of Guaialyptus has always been recognized where an intestinal or a respiratory antiseptic is needed.

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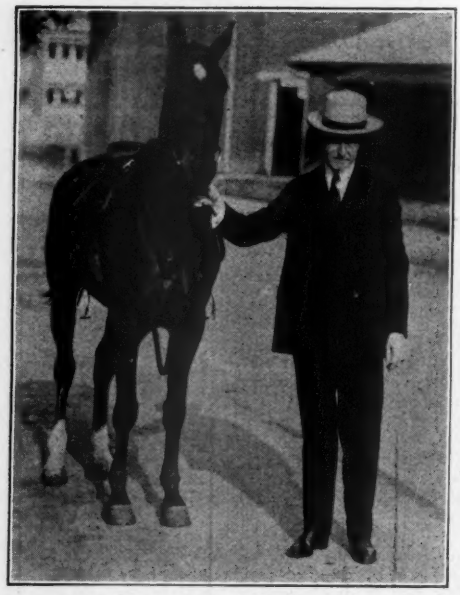
Texas dairy cows produce 1,000,000 gallons of milk per day.

The Texas sheep and goat raisers' association is attempting to raise a fund of $10,000 for the purpose of selling chevon in markets.

The United States bureau of animals industry reports 3,883,435 hogs slaughtered under veterinary inspection during July, 1923. This breaks the record for any previous July by over 800,000.

The United States department of agriculture is establishing an experimental fur farm in Northwestern New York for the purpose of studying the habits of fur-bearing animals, and the prospects of fur farming. The new farm is located near Saratogo Springs.

PRESIDENT COOLIDGE AND HIS FAVORITE HORSE, "GENERAL"



That President Coolidge is not a novice as a horseman is evidenced by the type and quality of his favorite mount which we herewith submit for the critical eyes of our readers to judge, as well as to show incidentally that the new incumbent of the presidential chair is a lover of animals.

As a market for stockers and feeders Kansas City easily leads all other market centers.

The natural excretion from the skin and other excretory organs have a positive attraction for mosquitoes.

The government buffalo herds in the game preserves increased 118 head this season by the birth of calves.

As the sweet clover acreage is expanding, veterinarians should familiarize themselves with circumstances under which this legume is injurious to animals.

The excessive pig loss of 1923 spring farrow will be compensated for in the increased breeding for fall farrowing. About 25% more sows have been bred for fall farrowing than there was in 1922.

On account of suspended importations during the war the manufacture of Camembert cheese was stimulated in this country to such an extent that there are now in operation 10 factories, some of which are producing 12,000 to 35,000 pounds per month. This is an exceptional showing in view of the fact that as a nation we are not familiar with this type of cheese.

CATTLE FLOUR

Concentration of bulk foods and drugs into essence and solid extracts has been in common practice for some time. Powdered milk and eggs on the market have been found to be quite valuable commercial products, particularly in instances where it is necessary to carry quantities of food sufficient to last over a considerable period of time. The declining world's markets for meat food products has seriously reflected upon the cattle industry. The central government of Australia realizing the necessity of protecting the cattle industry has conducted extensive experiments on the production of beef into a concentrated powdered form. The experiments thus far have been quite successful and it is probable that the time is not far distant when in the place of shipping frozen meats from the Australia market there will go forth tablets and small containers of cattle flour to supply the consumers of meat and particularly those in which it is necessery to concentrate such product into a small mass for traveling and expeditionary purposes.

Dr. J. H. Copenhaver, Pres. Dr. J. S. Koen, Sec.

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Meat flour is being manufactured just as satisfactorily in Australia as milk flour is in several other countries. The meat flour is made from raw meats which are dried at very low temperature. All that is actually lost is about 60 per cent of the incorporated water. All fats are expelled from the flour, thus the finished product is a meal of high protein content.

A case of tuberculosis of the udder of the milch goat has been reported by Plum of Copenhagen. There seems to be no doubt concerning the diagnosis in this case and it further substantiates the fact that goats are not immune to tuberculosis.

The number of animals slaughtered during the 11 months ending May, 1923, was far below those of the same period for 1922. The 1922 figures in round numbers, show 44,000,000 hogs slaughtered under government supervision as against only 35,000,000; cattle 8,300,000 as against 7,100,000; calves 3,900,000 as against 3,500,000. During the same period in 1923 there was an increase of the number of sheep slaughtered over 1922 of over 500,000.

In 1908, 700,000 hog carcasses were retained at Government inspecting plants as showing traces of tuberculosis. In 1922, 5,640,000 carcasses were retained, indicating the rapid increase of tuberculosis in swine.

An outbreak of anthrax is reported from the district of Wessington Springs, South Dakota.

Hog cholera is reported to be exceptionally prevalent in the northwestern counties of Illinois.

The common pin worm (Oxyuris vermicularis) is now thought to play an important role in the cause of appendicitis; and although not proved, the pin worm is charged with opening up the mucous membrane for bacteria. The extent to which intestinal worms open up paths for bacteria is one of the unsolved problems of etiology. The fact that they wound, perforate, penetrate and migrate under highly septic conditions is good and sufficient ground for indictment.

Military Section

Why a Military Section?

HOW many will ask this question, and how many will know the answer and have full sympathy with the project?

The professional man who subscribes to his favorite journal opens its pages each month eager to read the particular section which most appeals to him; if he is a specialist, such as in public health work, small animal practice or tuberculosis eradication he will turn to those sections. Or possibly the average practitioner turns first to the Editorial Section, the Editors' Personal Page and the Purely Practical items, or else the Case Reports, Queries and Answers, in an endeavor to secure some new pointers which will aid in his practice, and incidentally help to capture the elusive dollar. Many may ask therefore why this military section to take up space which might better be used to their professional advantage.

An effort will be made, first to justify the action of the editor in adding this section to VETERINARY MEDICINE, second to briefly state the object aimed at, and, third to state what is now being done and plans for the future to attain that objective.

The preamble to the Constitution of the United States gives as one of the reasons for its establishment that it is to "provide for the common defense." Not until the hundred and forty-fourth year of our independence did Congress pass a National Defense Act which established a definite military policy for the defense of our country.

The late President Harding published the following statment of the general intent of the Act of June 4, 1920:

"Our present national defense law establishes an economical and democratic military policy thoroughly consistent with our national traditions. It provides for a small Regular Army, to be augmented by great citizen forces in the event of national emergency. This is our traditional military policy. But whereas in the past these larger war forces have been extemporized after the occurrence of an emergency, the new law wisely provides that the framework of their organization shall be established and developed in time of peace, insofar as this is practicable through the voluntary service of our patriotic young men. The Army of the United States as defined in the new law comprises the Regular Army, the National Guard, and the Organized Reserves. Every patriotic citizen should encourage the development of these forces, each within its proper sphere."

The last sentence answers the question heading this article.

The present military policy depends upon the organization and training of the national guard and organized reserves to complete the army of the United States for defense in time of an emergency. For the first time the veterinary service has been given its proper place in both of these organizations, and our object is to organize our profession, train and co-ordinate it with other branches of the service. It is believed that the veterinary profession has its opportunity now to develop equally with the other professions in the organized reserve, and it is only by the civilian members coming into the organized reserve that they can shape the destiny of the profession. It hardly seems possible that those who saw the results of the utter lack of organization of the veterinary profession for military service in 1917, would not recognize the inclusion of the veterinary service in the scheme for the establishment and training of the organized reserve and the national guard as an opportunity to place the profession in the army of the United States on an equal plane with other professions. This can only be done by the civilian members of the profession and not by the veterinary corps of the regular army, as we of the regular service have learned too frequently during our struggle for recognition in the army. We must frankly recognize the sentiment of ill-will that prevailed against the "Army" in the minds of many of the emergency men; and we must also

frankly admit that in many cases there was just cause for this feeling. But time heals such wounds, and we are now striving to get the profession interested and to keep abreast of other professions in this movement. Veterinarians proved in 1917 that they were as much Americans as any other class of men and should another emergency arise there is no question what they would do. But we want to aviod a repetition of a lack of organization experienced in 1917, and the way to do that is to interest civilian members of the profession in the organized reserve.

The approved war department plans for national defense embraces six field armies, and calls for approximately 3200 veterinary officers. There are now 647 officers in the veterinary section of the officers' reserve corps, and the need for securing many more should be apparent to all.

The mere issuing of commissions to officers as members of the organized reserve will not provide a trained organization. It has not been possible for the great majority of those officers, except in the most general way, to learn the duties and responsibilities with which they will be charged if called into active service. It is the mission of the regular army to organize, develop, train and otherwise prepare the army of the United States in the event of a national emergency, and the veterinary corps is taking this means of getting in contact with the veterinarians of the country with a view to perfecting the veterinary section of the organized reserves. The editor of the military section will endeavor to place himself in the position of a reservist desiring to know everything possible about the service, and to answer all questions so far as he is able in a manner that will leave no detail unexplained.

Lieut J. R. Ludwig, V. C., represented the army at the meeting of the British Columbia, Washington and Oregon association held at Portland, August 2, 3 and 4.

Among the changes in the curriculum of the Army Veterinary School is a four months course on matters appertaining to field service to be given at Carlisle, Pennsylvania. Each class will receive four months field training at Carlisle and two months laboratory and didactic work at Washington.

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Clarke, Fred Arthur
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Wells, John Raymond
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Whipple, Earl Franklin
53 West Green St., Whitesboro, N. Y.

Wooden, Aubrey Arthur
Waterloo, New York.

PROMOTIONS AND ASSIGNMENTS

Major Henry Erickson Torgersen promoted to lieutenant colonel.

Captain Luke Thomas Nagle promoted to captain.

Capt. Oliver Albert Meyer, R. F. D. 2, East Alton, Illinois, assigned to Veterinary Evacuation Hospital No. 6 in capacity of evacuation officer.

2nd. Lieut. John Dawson Adams, 417 Union Street, Boise, Idaho, assigned to Veterinary Evacuation Hospital No. 1 in capacity of chief of professional services.

Major Burt English of the regular army has been promoted to the grade of lieutenant-colonel with rank from August 4, 1923.

MUTATIONS

1st. Lieutenant Arthur D. Martin, is relieved from further duty at Madison Barracks and assigned to New York General Intermediate Depot.

1st Lieutenant Oscar C. Schwalm is relieved from duty at New York General Intermediate Depot and is directed to proceed to the Panama Canal Department on transport scheduled to sail November 1st, for duty.

Captain Burton A. Seeley is directed to report to promotion examining board at El Paso for examination.

1st Lieutenant Harry J. Juzek is relieved from duty at the army veterinary school, Chicago, Illinois, and is directed to proceed to Robinson quartermaster intermediate depot for duty.

1st. Lieutenant Russell S. Shannon is relieved from further duty at Robinson quartermaster intermediate depot and is directed to Ft. Des Moines, Iowa, effective upon expiration of his present leave.

1st. Lieutenant Sawyer A. Grover is relieved from duty at Purchasing and Breeding Headquarters, Lexington, Kentucky, effective upon completion of temporary duty at Camp Knox, and is directed to proceed to Fort Bragg, N. C. for duty.

Captain Sherman R. Ingram is relieved from treatment Fitzsimons General Hospital and is

directed to report for duty at proper station, Ft. Clark, Tex.

1st. Lieutenant John K. McConeghy is relieved from temporary duty at summer training camp at Camp Grant, Illinois, returning to Chicago general intermediate depot for duty.

1st. Lieutenant Earl F. Long is relieved from detached service with 1st Squadron, 4th Cavalry, at Camp Stanley, Texas, returning to Fort Sam Houston for duty.

Major James R. Shand is relieved from duty at Fort Oglethorpe, Georgia, and is directed to proceed to Fort Sill, Oklahoma, for duty and in addition to duties as station veterinarian as officer in charge of veterinary instruction at Field Artillery School, Fort Sill.

Lieutenant Arthur D. Martin on duty at New York general intermediate depot is directed to proceed to Mitchell Field for temporary duty for the purpose of rendering veterinary service during international polo tournament.

Lieutenant Peter T. Carpenter is relieved from duty at Sacramento purchasing and breeding headquarters and is directed to Fort Riley, Kansas, for duty.

Intraveneous injections of Diazul, the new German internal antiseptic, is being experimented with on a large scale, as a treatment for periodic ophthalmia, by the veterinary corps of the army. One hundred to two hundred cubic centimeters of a one per cent solution is being used.

There has been some question of the value of cultures made postmortem. Giordano and Barnes made a careful bacteriologic study of 213 autopsies to ascertain first whether bacterial invasion into the blood occurs postmortem and, if so, to what extent and second, whether bacteria isolated from the blood or spleen of cadavers have any intravital significance. In summarizing the report of these investigators it is noted that postmortem bacterial invasion of the blood stream is of rare occurrence and that if reliable technique is employed valuable information can be obtained by postmortem bacteriologic examinations.

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Miscellaneous Section

DOESN'T LIKE WORM THEORY

In regard to the "worm" idea, as the causative agent in poll evil and fistulous withers, I am inclined to believe they ("the worms") deserve to be mentioned once in a while and feel it is only just that they should receive all the credit that is coming to them, however, when I see them accused of poll evil and fistulous withers I believe "the worms" themselves would turn if the news would ever reach their ears.

In making autopsies one finds little "wigglers" in almost every conceivable part of the cadaver—they are no respectors of privacy and I for one am not astonished to hear they have been seen knocking around the legamentum, nuchae.

Observation during the past fourteen years in a country practice has convinced me the "orthodox belief and teaching" as to the causative factors producing poll evil and fistulous withers—is sound.

Mr. W. R. Davis states that "he has seen really dreadful cases of sore back and severe sitfasts of old standing which recovered without developing into fistulous withers." We all have. If there is any conclusion to be drawn from this statement of fact in regard to fistulous, I have missed it. "A curious observation I have made is that horses used continuously in town work are seldom affected" and another "curious thing to remark is that many cases may be met within one area of a practice and few in other parts of it."

I fail to see anything mysterious in these observations—they are in fact, in perfect accord with the "orthodox belief and teaching." Poll evil and fistulous withers are more prevalent—frequently endemic, in the country simply because the exciting causes are to be found there and are absent in the city. Bruises, blows, etc., caused by cow stables (ceilings) and doors, pastures with surface rock (rolling) turning animals into orchards—animals rub themselves to the point of severely bruising the poll and withers in an attempt to get rid of flies and dirt, also one sees a particular tree in a pasture which is used as a rubbing post, are among the many causative factors of poll evil and fistulous withers—not existing in the city.

I have cured endemics of these cases by having certain trees cut down, avoiding pasturing in the orchards and having the animals "cleaned off" before being turned out, to reduce the inclination to roll in an endeavor to rid themselves of accumulated dirt, etc. A leather guard over the withers during service will prevent the stallion from "infecting" the mare's withers (with worms) with his teeth and producing fistulous withers.

Dear Mr. Editor, we have enough trouble on our hands: Distemper, influenza, strangles, etc., without making more. Tell them to stop rocking the boat. Old Virginia.

SYMPTOMS OF COCKLEBUR POISONING IN SWINE

I have been having deaths in a herd of hogs that are running in pastures full of cockleburs and am anxious to know if my diagnosis of cocklebur poisoning is correct. These animals are spring shoats in fair condition. Four have died out of 45 head. I only saw one of the sick and arrived when it was in a dying condition. The owner says they sicken and die without much warning. The postmorten examination held on this pig did not disclose any of the ordinary lesions of the more common swine ailments with which I am familiar. In fact all I could discover was an irritated condition of the small intestines.—Illinois.

Reply: Cockleburs do not poison Illinois hogs in the fall of the year. It is only the young growing plants that injure swine. In this climate therefore cockleburs are only dangerous in the spring of the year.

The symptoms as described by the department of agriculture are subnormal temperature, vomiting, rapid and feeble pulse, and death in a few hours according to the amount of the young plant eaten.

The genetic name "bacillus" which has been applied promisciously to all rod-like bacteria no longer conforms to the nomenclature of the Society of American Bacteriologists. "Bacillus" now refers only to aereobic, spore-bearing rods, while "bacterium" applies to all nonspore-bearing, rods, which are pathogenic.

"Fermented slop almost doubles the feeding value of the roughage and dry feed . . ."

Indiana veterinarian tells of constant success with FLEISCHMANN'S PURE DRY YEAST *in his practice* . . .

"I have been using Fleischmann's Pure Dry Yeast in my practice since Spring," writes Dr. J. C. Vance, a veterinarian of Indianapolis, Ind., "and have tried it in all animals for all conditions indicating it and I find your pure dry yeast not only handy to use but that it gives all the results I have had from other forms of yeast.

"I have been using yeast for 10 years in feeding hogs and would not attempt to feed without it. *Fermented slop almost doubles the feeding value of the roughage and dry feed fed with it.*

"To prepare unthrifty pigs for vaccination, along with worming and sulpho-carbolates, feed ground grain slop, fermented 48 hours with Fleischmann's Pure Dry Yeast.

"Follow up milk fever cases with drenches twice daily of 2 tablespoonfuls of Fleischmann's Pure Dry Yeast in one quart of water. When appetite returns feed 2 tablespoonfuls in ground feed night and morning for a week; milk flow will return to normal and general condition of animal will be greatly improved.

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"Give tablespoonful doses of Fleischmann's Pure Dry Yeast in a little ground grain three times daily following colic in horses; horses doing either heavy hauling or intense training will keep in much better condition if Fleischmann's Pure Dry Yeast is fed regularly. Under heavy feed use 2 tablespoonful doses, under light feed use one."

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DR. VANCE is only one of hundreds of veterinarians who have long prescribed yeast for conditions brought about by faulty digestion or metabolism. And others are welcoming, as he has welcomed, the introduction of Fleischmann's Pure Dry Yeast—yeast in a new, more highly concentrated form, especially prepared for feeding stock and poultry.

As a part of the stockman's daily feeding program, Fleischmann's Pure Dry Yeast, used to ferment the feed, keeps animals in good health and makes them put on weight faster. As a remedy for alimentary troubles affecting domestic animals, it has a distinct place in the veterinarian's practice.

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FINDS FOREIGN BODY IN CHAMBER OF THE HEART

A nine-year old horse began to lose appetite last July. At the time he would eat a little and at other times nothing, although he has worked all summer. During the last three months he would eat nothing but greens. I treated him with tonics (iron, strychnin, arsenic) with no effect.

A few days ago on examination I found the pulse normal in number with the exception that a beat would miss occasionally. The heart itself beat heavily and the respirations seemed very weak and as the patient seemed totally incapacitated for work the owner requested me to destroy him and hold an autopsy.

The autopsy revealed normal organs and lymph nodes with the exception of the heart which was slightly enlarged, and contained an antemortem clot in one of its auricles. I regret having failed to determine whether it was in the right or left one. The clot almost filled the chamber and in its center there was a piece of a weed easily identified as such. The question is how did this foreign object find its way into the heart.—Iowa.

Reply: There are always reasons to be skeptical about the nature of foreign bodies found in the chambers of the heart on account of the possibility of the fibrin of an old clot developing into a well-organized, solid object, but since the querist is certain that the nucleus of this clot was a reality a weed, two routes of travel suggest themselves. The one is by direct perforation of a weed such as a wild barley beard from the stomach or esophagus, and the other is via the pulmonary veins after being inhaled. Impinged in the mucous membrane of the esophagus a beard of wild barley or similar particle could easily pierce to an auricle and there begin to gather a clot around it with the eventual result that occurred in this case. The traveling of foreign bodies through the tissues is not unique but their lodgement in a chamber of the heart is rare and therefore gives to this case the stamp of significance.

S. Kondo has given a brief report in the Journal of Japan Society Veterinary Science, of an antirabic serum which was prepared by repeated injections of small quantities of living fixed virus into rabbits. This serum from the fixed virus nto rabbits. This serum from the and 1:100,000 neutralized 100 M. L. D. of rabies virus when injected in guinea pigs.

WANTS INFORMATION REGARDING POSSIBLE PLANT POISONING

A veterinarian in the Texas Panhandle is desirous of information, particularly the cause and treatment of the following described conditions that has affected three mares and one mule on one farm. There are eight or nine head of horses on this farm, part of them were worked regularly and the others were on pasture. The work horses were fed good quality of feed and had access to ample quantities of apparently pure water.

Two of the cases occurred in animals that were working and two occurred in those that were in pasture. The first evidence of the disease was incoordination which developed rapidly and the affected amimals went down and were unable to arise. In most instances the animals could stand when raised. Appetite and other functions were practically normal excepting locomotion. There was rapid emaciation. The general symptoms, excepting the normal color of the urine, were suggestive of azoturia.

Is there any poisonous plant that occurs in the Panhandle that will produce the above condition? Any suggestions from readers of Veterinary Medicine as to the cause and treatment of the above malady will be appreciated.

VELVET BEAN CONTAINS TOXIC PROPERTIES

Prof. J. W. Read of the Arkansas Agricultural experiment station has a short note on the vitamin content of velvet bean which is now extensively cultivated in the south.

"The question as to whether or not the seed of the velvet bean contains vitamin B in any appreciable quantity has recently been raised by Dr. E. R. Miller, of the Alabama Station, and still more recently by Professor W. D. Salmon, of the South Carolina experiment station. In Science for September 29, 1922, Professor Salmon reports the results of certain experiments in which three groups of mature pigeons suffered ill consequences in a strikingly short period of time when they were fed ground raw velvet bean seed. The statement is also made that the results of certain experiments indicate at least a small quantity of the B vitamin in the velvet bean.

"Sure and Read, in their paper reporting the 'Biological analysis of the seed of the Georgia velvet bean' which appeared in the Journal of Agricultural Research for October 1, 1921, Vol. XXII, No. 1, called attention to the high de-

gree of toxicity of the raw ground velvet bean when fed to rats. Young rats weighing from 40 to 90 grams existed only from 7 to 12 days on a diet composed solely of ground raw velvet bean seed and a liberal supply of distilled water. Miller had previously pointed out that the toxicity of the velvet bean may be due to the presence of dihydroxyphenylalanine. In our paper we reported that the condentration of B vitamin in the seed, exclusive of the tough seed coats and also the seed pods, was low. In a recently completed study of the biological value of velvet bean meal (i. e. the beans and pods ground together) the writer has found that the velvet bean meal carries a good concentration of the B vitamin, even after autocleaving from one hour at 15 pounds pressure. This is shown in the growth curves given in the figure.

"These experiments show that B vitamin is relatively abundant and stable towards heat in the thick seed pods of the velvet bean, but is of rather low concentration in the seed."

Dr. Peyton Pons (Medical Press. April, 1923) reports having discovered a sarcoma in a Plymouth Rock hen located in the subcutaneous tissue of the thorax that proved to be infectious to other hens both by grafting and by inoculation with filtrates made from the growth.

The results of vaccinating mares in the field to prevent abortion have been excellent, according to E. S. Good of Kentucky. The experimental work in the vaccination has been used on from 150 to 400 mares yearly.

Rubino and Portorella have reported an interesting experiment in the Rev. de Med. Vet. Montevideo in which it was found that under certain conditions sheep are susceptible, not only to anaplasmosis, but also to piroplasmosis.

Sheep are more often the victims of parasites than any of the other domestic animals. Pasture rotation is the chief preventive.

Bovine infectious abortion disease in any herd is self limiting, providing new infection is not constantly added and a high percentage of herds will in time be reduced to a minimum, even though very meager precautions are taken against it. This important factor renders it unwise to quickly dispose of whole herds of cattle because the infection is present in them.—Geo. H. Hart.

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freshen, repair and reshape them if needed. Furs are very light weight, therefore it will **cost but little** to send them in to us by Parcel Post and get **our estimate of cost;** then we will hold them aside awaiting your decision. If you say **"go ahead,"** very well; we will do so and hold them free of storage until you want them. If you say **"no,"** we will return them post-paid.

Our illustrated catalog and style book combined gives a lot of useful information. It tells how to take off and care for hides. About **our safe dyeing process** on cow and horse hides, calf and fur skins. About dressing fine fur skins and making them into neckpieces, muffs and garments. About taxidermy and Head Mounting.

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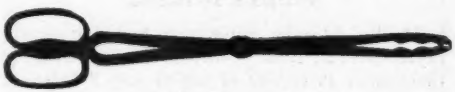
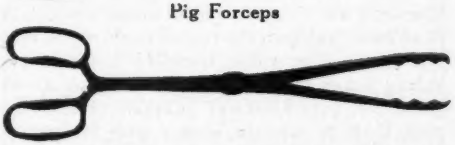


Pig Forceps



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News Section

On June 30, 1923 there were 17,423 students registered in the medical colleges of the United States, an increase of 1,292 over 1922. The highest number was reached in 1904 when there were 28,142.

Veterinarians of Hancock, Winnebago and Kossuth counties (Iowa) held their second meeting at Britt in August. Thirty attended. Dr. J. S. Warren is president; Dr. R. E. Hanson, vice-president; and C. R. Wilson, secretary-treasurer.

The Mississippi Veterinary Medical Association will hold its next meeting at Grenada, October, 24-25, 1923. The officers of this association are;—Dr. I. W. Edwards, Vicksburg, president; Dr. John Oliver, Jr., Columbus, 1st vice-president; Dr. G. B. Bradshaw, Hattiesburg, 2nd vice-president; and Dr. Hugh L. Fry, Jackson, secretary treasurer.

The 14th annual meeting of the South Carolina Association of Veterinarians was held at Cheater, July 23-24. Nearly all of the veterinarians of the state and many visitors from adjacent states attended. The summer meeting for 1924 will be held at Sumter. The officers of this association are: M. R. Blackstock, Spartanburg, secretary-treasurer; W. K. Magill, Chester, president; and T. J. Kinard, Ninety-Six, vice-president.

COLORADO INDURANCE TEST FOR SADDLE HORSES

At the 300-mile endurance test for saddle horses held at Broadmoor, Colorado in August there were 19 entries of which only 7 finished. The time was 45 hours and 44 minutes which is 27 minutes less than the record made in the east last year. The route travelled however involved heavy climbing, at certain places at an altitude of over 6,000 feet Captain H. E. Watkins, U. S. A. was the winner with his private mount "Norfolk Star," a thorough-bred chestnut gelding, 8 years old weighing a thousand pounds.

Drs. M. J. Dunleavy and A. J. Salvage were the official veterinarians.

After fighting its own way to success for more than a century from resources derived from the tuition of students and a few private donations the Royal Veterinary College of London has received its first grant of public funds—an appropriation of $100,000 to build a new research institute.

The New York State Veterinary Medical Society is sending a delegate to the annual meeting of the United States Live Stock Sanitary Association at Chicago in December, to urge the association to consider the interests of the practicing veterinarian in their recommendations relative to the suppression of communicable diseases.

WASHINGTON STATE VETERINARY MEDICAL ASSOCIATION

The third annual meeting of the British Columbia, Washington and Oregon Veterinary Medical Associations was held in Portland, Oregon, on the 2nd, 3rd and 4th of August, 1923. The headquarters was at the Imperial Hotel and the sessions at the Chamber of Commerce rooms in the Oregon building.

The meeting was one of the best ever held in the Pacific Northwest. The delegation from British Columbia was not as great as was expected but in all there were some seventy-five or eighty veterinarians in attendance during the course of the meetings. There were representatives from the three northwestern states, British Columbia, the Bureau of Animal Industry and the Army.

The program was characterized by an earnest effort on the part of all those discussing papers or presenting them to deal scientifically with fundamentals. It was gratifying to note the excellence of the papers of some of the younger members of the profession. Apparently the higher educational requirements of recent years is raising the intellectual tone of our meetings.

Following an address of welcome to the city by the Mayor of Portland, Dr. E. E. Wegner was called upon to reply and did so in an appropriate impromptu address that would be a credit to any man and to any profession. He

dwelt particularly on the value of the veterinarian to the community at large and to his professional obligations and responsibilities. Without doubt the veterinarians themselves felt a higher regard for their profession after hearing Dr. Wegner's speech.

Dr. E. A. Schmoker discussed sterility in cattle in his usual splendid manner using drawings and illustrations to bring out special points.

Dr. H. G. Miller, of the Oregon college of agriculture, presented an unusually interesting paper on animal metabolism. We find this subject very interesting in the Northwest owing to the varied geological formations existing here. Many other numbers on the program are worthy of special mention but the program is appended to save space.

One feature of the meeting that is entitled to special mention was a series of moving pictures put on in the city auditorium under the auspices of the association and made free to the public. It included such reels as "Out of the Shadows," "Exit Ascaris," "Why Cottage Cheese?" "Milk Inspection," "The Value of the Little Purple Stamp," "The Horse in Motion" and others of a similar character familiar to the most of us but none the less interesting and highly educational to the public.

In addition to the usual toasts and speeches at the banquet we were pleasantly entertained by an orchestra of four pieces, a vocalist and a comedian. This helped to diversify a program that was on the whole very substantial and somewhat strenuous. We did not forget to remind ourselves once again that we are hoping to have the A. V. M. A. with us in Portland, Oregon, in 1925, and are laying our plans to that end.

Next meeting to be held at Tacoma, Wash.

New officers of Washington State Veterinary Medical Association: President, H. A. Trippeer, Walla Walla; Vice President, R. J. Donohue, Outlook; Secretary-Treasurer, Carl Cozier, Bellingham.

Carl Cozier, Sec.-Treas. Washington Assn.

The veterinary college under American jurisdiction having the highest requirement is the College of Veterinary Science, University of the Philippines. The entrance requirements confirm to continental standards and the course is five years. There are nine veterinarians on the faculty. The college is located on the campus of the college of agriculture at Los Banos. Alvanzo S. Shealy, B. S., M. D. V., is the dean.

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The depression through which agriculture is passing is having a telling effect on the attendance of the agricultural courses as well as the veterinary courses of the colleges.

The large bills owed to veterinarians for vaccinating hogs is a serious matter for professional men who work on a small capital, and should furnish food for thought from many sources.

That lauded benefactions may be only "on the surface" is shown by the report of a number of Central Illinois veterinarians that farmers are asking them to vaccinate their hogs because the farm bureau will not extend credit for the serum and virus.

Spray of the University of Chicago, has recently described a pathogenic diplococcus in the Journal of Infectious Disease, Vol 2, that is probably a factor in the production of pneumonia in sheep. The lesions from which these organisms are isolated were similar to those of caseous lymphinitis. The exact pathogenicity of this microorganism in sheep has not been definitely determined. Future experiments, no doubt, will give further light upon the subject.

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From January 1st to September 12th, 1923, automobiles have killed 465 in Chicago alone. The number injured has not been computed.

Dr. L. G. Hart, Sr., Chippewa Falls, Wisconsin, one of the leading and best known practitioners of that state, sustained severe burns from a terrific explosion of gasoline while filling his car. He is confined to a local hospital where his condition is reported as serious, and the outcome doubtful.

DEATHS

Mrs. D. H. Herberich, beloved wife of our good colleague Dr. Herberich, died at their home in North English, Iowa, August 6th, after a lingering illness. Burial was at Chatsworth, Illinois.

Dr. Frederick E. Commins, veterinary inspector for the board of health of San Francisco, died at his home in that city June 21 after a lingering illness. He was 36 years old and is mourned by many friends.

Dr. J. K. Magley of Decatur, Indiana, died suddenly of acute dilatation of the heart September 4. He was ill only a few hours. Dr. Magley served as an officer in the veterinary corps, A. E. F. with the grade of captain and was enjoying a large and growing practice when taken away. He was an efficient officer, and his colleagues speak of his death as a great loss to the profession.

DR. FRED A. MUELLER DIES UNEXPECTEDLY

Dr. Fred A. Mueller, Sr., founder and principal promotor of the Indiana Veterinary College died at his home at Indianapolis August 13 and was interred August 17, according to a brief message received from one of his colleagues too late to write a fitting obituary of this lovable man into this issue. Since Dr. Mueller, in good spirits and apparent good health, attended the annual meeting of the A. V. M. A. at Montreal August 28-31, joining the excursion at Chicago and participating in the program throughout the convention, his sudden demise comes as an overwhelming shock to his host of admirers.

DISTINGUISHED AMERICAN VETERINARIAN DIES IN ENGLAND

Dr. W. H. Wray of the United States bureau of animal industry died at his home in London August 23 after a brief illness. The deceased was an outstanding American veterinarian and a pioneer bureau veterinary inspector. He was sent abroad in the early 90's with other representatives of the department of agriculture to complete arrangements for the exportation of live cattle into England and remained at that post thereafter ably representing the bureau and rendering a valuable service to his country throughout this long tenure.

He was born in this country in 1854, graduated at the American Veterinary College in the 80's, and is described by Chief Mohler as a man of dignified bearing, high professional qualifications, and of instinctive hospitality that has left a lasting impression on all who had occasion to visit him in his foreign home either in an official or social capacity.

Dr. R. W. Tuck, formerly in charge of the bureau forces at New Orleans has been chosen as his successor.

STATE VETERINARIAN OF UTAH DIES OF MALTA FEVER

Dr. Wm. A. Stephensen, state veterinarian of Utah, reported as being in poor health for some time from a mysterious complaint, died in a local hospital in Salt Lake City, August 16 from a confirmed case of Malta fever, which he is thought to have contracted while investigating an outbreak of this disease among goats in the southern part of that state during the summer months. His death is said to be the fourth one on record in this country from that disease.

Dr. Stephensen was 34 years old and a native of Utah and an alumnus of the veterinary department of the Colorado State college of agriculture where he obtained his veterinary degree with the class of 1916. He practiced in Milliard county, Utah, until 1921 when he received the appointment of state veterinarian of that state, which office he is credited with having filled in a highly competent and conscious manner. He was known as a capable investigator and an indefatigable worker, a good citizen and a loving husband and father, and was well liked by his fellow workers and all those with whom he came in contact. He is survived by his widow, three children and several brothers and sisters to whom all extend their deepest sympathy.

Dr. Stephensen was a member of the A. V. M. A. and served one term as president of the Utah State veterinary medical association.

Ogden, Utah. E. A. Bundy.

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WOULD THE BUREAU MAN BE A SUCCESSFUL PRACTITIONER?

The illustration votes, yea, for isn't this Dr. Jas. Healy, field veterinarian for the United States bureau of animal industry in Wisconsin caponizing a cockerel with the amazing ease and skill of an expert?

Dr. L. G. Hart, Sr., in Palm Beach attire and Dr. C. R. Curtis are at the left taking their first lesson while Dr. Jas. O'Donnel, past master of the Wisconsin caponizers, is in the foreground with arms akimbo silently expressing his confidence in the dexterity of the operator whom he taught to do the job a year ago.

The picture was snapped at the recent meeting of the Wisconsin State and North Central Wisconsin associations at Steven's Point where, as previously announced in VETERINARY MEDICINE, everyone learned the art of cockerel emasculation.

Dr. P. West, of Madison, has been appointed a member of the state board of veterinary examiners of Wisconsin. Dr. A. J. Abbott, of Marshfield, and Dr. T. H. Ferguson, of Lake Geneva, are the other members.

INTERVIEWS REFLECT CALIFORNIA SITUATION

While Dr. J. F. DeVine, of the Goshen Laboratories, was traveling in California during January, he asked the following question of a number of practicing veterinarians: When and where did you graduate? In what kind of practice are you engaged? How is business? How are collections? Here is the report of the interviews:

S. Brown, C. V. C., '12; business good; collections good.

C. W. Classon, Hollywood, K. C. V. C., '05; small animal practice; business good; coltions "bum"'.

C. H. Reid, K. C. V. C., '18, principally small animal practice, business good, collections good.

W. R. Carr, Los Angeles, Ont. V. C., '90, large animal practice exclusively; business good; collections good.

S. M. Hunt, Pasadena; Ames, '04; B. S. A., Iowa, '16; general practice; business good; collections fair.

J. B. Bell, Pasadena; Cornell, '09; mixed practice; business fair; collections fair.

J. A. Dell, Los Angeles; Ont. V. C. '81; small animal practice; business fair; collections good.

T. H. Agnew, Lamanda Park; Ont. V. C. '96. Small animal practice; business good; collections good.

W. A. Boucher, Pasadena; Ont. V. C. '01; small animal practice; business fair; collections good.

J. A. Woodside, Van Meys; S. F. V. C., cattle practice; business good; collections good.

J. L. Tyler, Huntington Park; C. V. C. '91; large animal practice only; business good; collections good.

J. P. Bushong, Los Angeles; U. Pa., '06; large animal practice and dairy inspection; business good; collections good.

W. T. Curtis, Los Angeles; C. V. C., '08, N. Y. '11; small animal practice; business good; collections fair.

B. W. Heath, Whittier; C. V. C., '01; "rotten".

Hal C. Simpson, Pomona; K. C. V. C., '99; mixed practice; business fair; collections not good.

Roy W. Broadhurst, Long Beach; S. F. V. C., '13; small animal practice; business improving; collections 50-50.

If the veterinary profession is less attractive than formerly perhaps it is because you have not helped the associations to make it better.

Dr. W. E. Hapner reports that Arcanum, Ohio, is a good location for a good veterinarian. Nothing to sell.

Dr. E. W. Brown, formerly of Macon, Ill., has moved to a warmer climate, locating at Earle, Ark.

Dr. E. A. Miller, Milroy, Indiana, has moved to Indianapolis where he will take charge of the veterinary department of the Columbia Farm.

Information is desired by Mrs. Louise Clinton, 1114 Hamlin place, Jackson, Michigan, as to the whereabouts of her brother, Dr. W. A. Stevens, last heard from at Phoenix, Arizona.

An interesting case in which the eye of a sixteen year old girl was invaded by a larval of the oestris ovis was reported by Dr. H. H. Stark of El Paso, Texas. (Science).

Dr. C. L. Henderson, federal veterinarian in charge of hog-cholera control in Utah, was elected president at the annual meeting of B A. I. inspectors held at Ogden in August. Dr. W. L. Carson was elected secretary, Dr. R. W. McGinnis, vice-president, and Dr. F. E. Murray, treasurer.

BIRTHS

Frederick William, Junior, is the name of the new arrival at the home of Dr. and Mrs. F. W. Seekamp, Greenfield, Illinois, August 30, 1923.

Patricia Jane is the name of the new arrival August 9, at the home of Dr. and Mrs. E. A. Miller, Indianapolis, Indiana.

Dr. and Mrs. D. G. Darling, Hooper, Nebraska, announce the arrival of a ten pound baby daughter, August 29.

Dr. and Mrs. E. T. Brockman, Letcher, South Dakota, announce the arrival of the stork with a little daughter, seven and a half pounds, September 5.

Master Dale Bernard Johnson, eight pounds and six and a half ounces, is the name of the new assistant who arrived at the home of Dr. and Mrs. Bernard Johnson, Spokane, Washington, on August 22.

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FOR SALE—Good veterinary practice in southern Wisconsin, no real estate, city of 5000, good schools and churches. Address F. E. S., VETERINARY MEDICINE.

FOR SALE—Southern Wisconsin practice, good business, no Real Estate, Town of 5,000. Address No. 759 VETERINARY MEDICINE.

FOR SALE. Doctors:—I have a good paying practice for sale if taken at once. Have other business that requires my attention. A. T. Atkinson, V.S., St. Paul, Kansas.

POSITION WANTED—(Go anywhere). Graduate Penn. State College, also Iowa State College. Several degrees, B.Sc., D.V.M., six-year course. Consider teaching, manufacturing firm, this or any other country—in fact ANY kind of a position, anywhere. Further details and references on request. Address 3425, care F. V. Kniest, Peters Trust Bldg., Omaha, Nebr.

POSITION WANTED—Specially trained in bacteriology, pathology, also can teach, do research and scientific work. Degree from Iowa State Univ. Also from Ohio State Univ.—special studies in pathology, bacteriology, etc. Address L. R., care F. V. Kniest, Peters Trust Bldg., Omaha, Nebr.

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Concluded from page 923

the difference existing among individuals of the same species to a given disease. Sewall Wright of the United States department of agriculture has shown that different inbred families of guinea-pigs are very different in their resistance to tuberculosis. Aside from their resistance or susceptibility to this disease, most of the other differences existing among these families are without question hereditary; and we are safe in including with these the differences in resistance.

Little, formerly of the Harvard Medical School, has shown that in mice resistance and susceptibility to tumors are inherited characters. Loeb, of Washington University, has found the same condition to hold in mice for cancer.

Conclusion

Therefore disease may be the result of heredity alone; it may be the result of heredity plus environment; or it may be the result of environment alone that is of infection not supported by hereditary factors.

Because of the existence of differences among individuals in their resistance to disease, a challenge exists for both the pathologist and geneticist to explore further this field for in it may be found opportunities to cope still more effectively with the problems of the control of disease.

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Dr. E. L. Harper, Maco, Miss., is leaving veterinary practice to engage in the lumber business with his father at Tuscalosa, Ala.

Dr. W. C. Bailey, of Kentwood, La., accompanied by his wife, reports having spent a pleasant vacation motoring through Indiana.

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Be Sure It's a STRASCO

Dr. E. B. Mount has moved from Cleveland, Miss., to Sumner, Miss.

THE FIELD OF SWINE PRACTICE AND ITS RELATIONS TO THE PRACTITIONER

Concluded from page 949

catch them, get the job over with as soon as possible, turn the hogs out into mud holes and filthy yards, and then collect a fee for professional services. The owner is paying to have a veterinarian do the work, but the job is done no better than he would do it himself, or perhaps not as well.

What Does the Farmer Pay For?

The serum and virus are ordered just as needed by going to the phone and calling long distance for it. No supply is kept for the service of his clients; no record is made of the serial numbers of the serum and virus and conditions met in the herd; the serum and virus are not kept cold as they should be, and small amounts left over are returned perhaps from several jobs without keeping them under proper refrigeration. Just what is the farmer paying his veterinarian for? If abscesses occur in a large per cent of the herd, the soil is blamed for harboring the infection. (We all know it does contain organisms). Were the syringes boiled or otherwise thoroughly disinfected? Runts, wormy pigs, pigs with ulcerative enteritis, "flu" and the other diseases of young pigs, are treated by some just to get the job.

As long as such practices are continued, there will be grief following vaccination and the profession as a whole will suffer, although perhaps only a small per cent of the practitioners are guilty of hasty, loose work.

It is not pleasant to appear before legislators or as an official veterinarian otherwise and have these cases of inefficient and careless workmanship presented as representative of the profession. If we are to retain this immunization work, we must qualify to handle it in a scientific manner.

The Question of Overcharging

On the other hand, if the practitioner endeavors to master all the intricacies of swine diseases, he should receive liberal recompense for his services and he should be protected from outside influences. Much has been said about the veterinarians overcharging for vaccinating. A few men in the profession have charged exorbitant prices, no doubt. However, that has never been general. Just recently in talking to one of the prominent officers in one of our farmer organizations, I was told that there never had been

BETZCO CANINE OPERATING TABLE

A standard Operating Table for human use, converted by a slight change, the addition of six inexpensive tying rings, into a Canine Table, allowing us to sell it at a price only slightly above the regular price to physicians. This price, due to enormous production, is very low. Thousands of these tables are sold to physicians and veterinary purchasers of the table share in the benefit of lowered costs due to large production. Similar tables manufactured, for veternary purposes only, cost you from $65.00 to $95.00. Note how much our price will save you.

Built from selected furniture steel. Gives many positions; offering a flat surface for general operating, and a tilted surface for spaceing. Folds as shown at top of illustration for taking along in the car on calls. Six movable tying rings are clamped to heavy wrought iron edge at any point, allowing dogs or cats to be tied in any position. Sold under guarantee, and on terms with references.

10VM700 Betzco Canine Operating Table, $27.50

NEW YORK 6-8 W. 48th St.

FRANK S. BETZ COMPANY HAMMOND, IND.

CHICAGO 30 E. Randolph St.

general complaint in Iowa about veterinarians overcharging for vaccination. This was simply used to make capital for the men making the accusations. If some veterinarians have charged too much for their immunization work, the other extreme is found now in some instances.

Serum and virus cannot be handled for nothing. Some practitioners are now doing their work almost below safe limits for such work. The profession is hurting itself by such practices, for loose methods of immunization will be encouraged. The farmer will pay the bill in the long run. He should be satisfied with good work and results rather than try to hammer the price down to a level that the best type of veterinary service can't be given him.

Farmer Vaccination a Challenge to Education

If we are forced to meet farmer vaccination and county agents handling serum, the veterinarian will be driven out of business unless the former come to grief. Neither alternative will work out for the best interest of the live stock industry. While the situation is discouraging, still the leaders in agriculture certainly will see that the veterinarian must be encouraged by checking these outside influences that are trying to undermine the profession or else the live stock industry will suffer itself. There is no need of our going through high school and four or more years of university training if farmers can be taught to do our work in a few days. If they can't be taught to handle a filterable virus and control it under all conditions met in the field, then it is dishonest to teach them they can and give them licenses making them think that they are capable of doing such work. Short courses in veterinary science should be limited to teaching sanitation and principles of infectious diseases that may be overcome by proper veterinary assistance.

Definite treatments of any kind should not be taught unless the foundation work has been laid for a thorough understanding of disease and that is only done in veterinary colleges. The very principles of higher veterinary education are attacked by all these outside influences which will lower the standard of veterinary service to the live stock industry unless they are checked and the practitioner protected and recommended to the confidence of the live stock owners.

I have shown that the field of swine practice is varied and that it covers the whole year. Its relation to the practitioner is vital, for it must be retained by the profession in the swine raising districts if the live stock industry is to have the highest type of veterinary service.

U. S. GOV'T SEAL FURNISHED BY THE GOV'T AND APPLIED UNDER FEDERAL Supervision

First Company to apply

Government Legend in conjunction with Federal License number printed on paper caps protecting rubber cork held in place by a non-replaceable U. S. Government Seal furnished by Federal Government and applied under Federal Supervision.

First Company organized selling exclusively to the Veterinarian, being established in 1909.

First Company to manufacture Clear Anti-Hog Cholera Serum, producing this product in 1911.

First Company to establish branches and service stations in every locality in the corn belt, thus giving to the Veterinarian quick shipping service at least expense.

SIHLER SERUM CO.

210 Central Avenue
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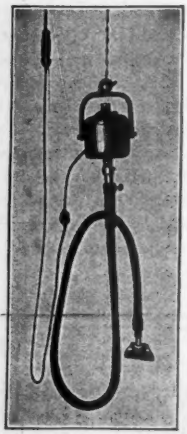
The GILLETTE Electric Clipper

Eliminates Unnecessary Work and Annoyance



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Horses,
Mules,
Cattle
and Dogs

It Shears
Sheep and
Goats

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Operates from Any Electric Socket

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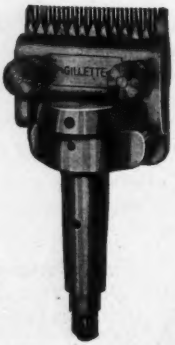

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Gillette Clipping Machine Co.
133 West 31st Street
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Dr. Leo. S. Englerth and Miss Florence May Orth, both of Royalton, Minnesota, were united in marriage at the Holy Trinity Church of that city, August 23, 1923.

Drs. J. I. Curtis, Claude Starley, and A. J. Webb are mentioned among the prospective successors to the late Dr. W. A. Stephensen, state veterinarian of Utah.

Dr. W. C. McConnell of Shawnee, Oklahoma, is building a modern veterinary hospital, described as the last word in up-to-date accommodations for sick animals of all kinds.

Dr. Willis B. Lincoln, the new state veterinarian of Tennessee, accompanied by Mrs. Lincoln, attended the Montreal meeting, joining the western delegation at Chicago.

Lead that is absorbed from the gastro-intestinal or respiratory tract is stored or deposited in varying quantities in the calcareous portion of the bones. There is a gradual release and ultimate elimination of small quantities of the deposited lead. If the acid base equilibrium of the body becomes distinctly acid there will be a rapid release of lead resulting in symptoms of acute lead poisoning. If the acid base equilibrium remains normal or only slightly acid there will be a gradual elimination resulting in symptoms evidencing chronic lead poisoning. The lead deposited in the bones does not cause any disturbance. The symptoms of lead poisoning are manifestations of the elimination of lead. Lead is primarily eliminated in the urine and feces.

According to the survey made by the Department of Agriculture, the number of sows to farrow the first six months of 1923 will be 13% greater than the number that farrowed in the spring of 1922. It is of considerable interest to note that an average of six pigs per litter were saved in the spring and fall litters in 1922. These figures may be a little in excess of the actual pigs saved. It is believed by some that not to exceed 5 pigs have been saved at least prior to 1922. It is hoped that the increased saving is an omen of better care and provision of more sanitary surroundings for swine, but the fact must not be overlooked that even with the saving of 12 pigs per year per sow the breeding efficiency is less than 70 per cent.